3B

Chemical Processors, Inc.
Pier 91 Dangerous Waste Treatment and Storage Facility

Permit Application

Submited to Washington Department of Ecology
and EPA Region X

CHEMICAL PROCESSORS, INC.
2203 AIRPORT WAY SO., SUITE 400
SEATTLE, WASHINGTON 98134
PHONE: (206) 223-0500

VOLUME V

BURLINGTON
ENVIRONMENTAL
A Philip Environmental Company

WAD 2917
3b 04-05-95

CERTIFIED MAIL

April 4, 1995

Mr. Galen Tritt
Washington Department of Ecology, NWRO
3190 160th Avenue S.E.
Bellevue, WA 98008-5452

Re: PRMOD6-1: Revisions to Inventory Elimination Scenarios for Closure

Dear Mr. Tritt:

In regards to the above referenced permit modification, enclosed are revised pages to be inserted into the Pier 91 Facility Part B Permit Application. Please note that several mathematical, typographic, and other errors that appeared in the pages sent to you with the original permit modification have been corrected, resulting in a new closure cost estimate. Please insert these pages into your copy of the Permit Application.

For the purposes of financial assurance, the cost of closing the interim status units which are not included in the Part B closure plan is $175,728. Therefore, total financial assurance for closure of the Pier 91 Facility is $681,730.

Sincerely,

Keith Lund
Senior Environmental Compliance Specialist

cc: Carrie Sikorski, EPA Region 10
Gerald Lenssen, Ecology HQ

BURLINGTON
ENVIRONMENTAL
A Philip Environmental Company

April 3, 1995

Part B Permit Modification
PRMOD6-1

As required by WAC 173-303-810(12) and (13), Burlington Environmental Inc. is providing the following certification statement for permit modification request PRMOD6-1 for the Burlington Pier 91 Facility. If you have any questions regarding this matter, please contact Peter Ressler at (206) 227-7522 or Keith Lund at (206) 227-7527.

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Richard J. Lavoie
Executive Vice President

4-3-95
Date

#433

Chemical Processors, Inc.
Pier 91 Dangerous Waste Treatment and Storage Facility

Permit Application

Submited to Washington Department of Ecology
and EPA Region X

September, 1988

CHEMICAL PROCESSORS, INC.
2203 AIRPORT WAY SO., SUITE 400
SEATTLE, WASHINGTON 98134
PHONE: (206) 223-0500

Copy No. 5 OF 12

VOLUME V

Section H

SECTION H

TRAINING PLAN

SECTION H. TRAINING PLAN

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SECTION H. TRAINING PLAN

H1.0 INTRODUCTION AND GENERAL DESCRIPTION

40 CFR 270.14(b)(12), 264.16
WAC 173-303-330, 806(4)(a)(xii)

The training program conducted by Chemical Processors, Inc. prepares personnel to maintain and operate the Pier 91 dangerous waste facility in a safe manner and in compliance with regulatory requirements. The program also prepares personnel to respond effectively in emergency situations. All personnel employed at the Pier 91 Facility undergo training according to this plan. A copy of this plan is kept at the facility at all times.

The Chemical Processors, Inc. training plan addresses the following types of training:

- -General orientation training (Section H2.0)
- -Job-specific introductory training (Section H3.0)
- -Continuing training (Section H4.0)

All new employees receive orientation training and job-specific introductory training. General orientation training introduces a new employee to the company, the management and the operations of Chemical Processors, Inc. Job-specific introductory training is training related to the specific duties of each job function. It is uniquely tailored for the position based on the new employee's education, experience and other qualifications.

In addition, every employee involved in the operations of the facility will participate in continuing training. Employees receive continuing training to maintain

proficiency, learn new techniques and procedures, and reinforce safety, quality and compliance consciousness.

The training plan also describes the training program administration in Section H5.0 and documentation of training in Section H6.0. Job descriptions and personnel duties are provided in Section H7.0.

H2.0 GENERAL ORIENTATION TRAINING

Revised, November 1991

40 CFR 270.14(b)(12), 264.16(d)(3)
WAC 173-303-330(2)(b), 806(4)(a)(xii)

All new employees must successfully complete an orientation training session that fulfills the requirements outlined in 29 CFR 1910.120 (OSHA Hazardous Waste Operations and Emergency Response training regulations). Under OSHA, employees involved in hazardous waste operations at treatment, storage, and disposal facilities regulated by RCRA currently are required to complete 24 hours of introductory training and three days of supervised work experience prior to working without direct supervision.

An outline of the general orientation training is provided in Table H2-1. The general orientation training is designed to enable employees to perform their assigned duties in a safe and healthful manner so as not to endanger themselves or other employees.

TABLE H2-1. GENERAL ORIENTATION TRAINING
Revised, November 1991

I. Hazard Communication

- Introduction
- Toxicology
- Hazard Communication Program
- Material Safety Data Sheet (MSDS)
- Chem-Bank System
- Hazardous Material Information System (HMIS)
- Chemical handling procedures

II. Specific Chemical Hazards

- Provides information regarding the hazards involved in the handling of acids, caustics, solvents, pesticides, and dust and other particulates.

III. Industrial Hygiene, Medical, and Emergency Response

- Industrial hygiene monitoring and employee notification
- Occupational medical surveillance
- Emergency response (health effects and safety)

IV. Fire, Respirator, and High Risk Procedures

- Fire and extinguishers
- Respiratory protection program
- Respirator care, maintenance, and seal testing
- Air pack/air line (SCBA) use
- Confined space entry program and permits
- Hot work program and permits
- Line breaking program and permits

V. General Safety and Health

- Back injury protection
- Drum handling safety
- Fall prevention
- Hearing conservation
- Heat stress
- Accident investigation
- Chemical incompatibility

NOTE: This outline reflects the typical content of the general orientation training program. The content of this training may be modified to meet the specific needs of the employees being trained (provided the basic requirements of 29 CFR 1910.120 are met).

H3.0 JOB-SPECIFIC INTRODUCTORY TRAINING

Revised, May 1990, November 1991
40 CFR 264.16(a)(2)&(3), (d)(3), 270.14(b)(12)
WAC 173-303-330(1)(a)&(d), (2)(b), 806(4)(a)(xii)

After completing general orientation training, employees receive introductory training relevant to their specific job responsibilities. The content of job-specific introductory training is outlined in Table H3-1. Some of the job-specific introductory training is a review of topics included in orientation training. The review topics are covered in more detail in job-specific introductory training.

As part of job-specific introductory training all employees involved in facility operations are instructed in their specific duties and responsibilities related to emergency response. Job-specific emergency response training includes:

- -Procedures for using, inspecting, repairing and replacing facility emergency and monitoring equipment;
- -Key parameters for waste feed cut-off operations;
- -Communications or alarm systems;
- -Response to fires or explosions;
- -Response to spill or ground-water contamination incid2nts; and
- -Shutdown of operations.

The level and amount of training for each employee is geared to the duties and responsibilities of that employee's position and the employee's education, experience and other qualifications. For example, support and facility

TABLE H3-1. JOB-SPECIFIC INTRODUCTORY TRAINING
Revised, November 1991 Sheet 1 of 2

I. Facility and Company Overview
Typical topics covered include:

- Facility description
- Restricted areas
- Locations of emergency equipment
- Procedures to enter and leave facility
- Plant tour
- Organization structure

II. Regulatory Overview
Typical topics covered include:

- RCRA regulations (standards applicable to hazardous waste treatment, storage, and disposal facilities)
- TSCA regulations (storage and disposal of PCBs)
- DOT regulations (proper manifesting, labeling, and packaging of hazardous wastes)
- Spill reporting requirements
- Facility inspection requirements
- Sewer discharge permit requirements
- Air emission controls
- Fire department restrictions

III. Waste Handling and Tracking Procedures
Typical topics covered include:

- Waste characteristics and compatibility
- Sampling and analysis
- Inspections
- Waste tracking
- Recordkeeping
- Waste transfer operations

IV. Safety
Typical topics covered include:

- Job-specific personal protective equipment requirements
- Location and use of safety showers and eyewashes
- Safe job procedures
- Review of key items covered in general orientation training

V. Emergency Response Procedures/Contingency Plan Review
Typical topics covered include:

- Evacuation procedures
- Location, use, inspection, and repair of emergency and monitoring equipment
- Communication and alarm systems
- Spill response and control
- Fire and explosion response
- Shutdown of operations
- Waste feed cut-off operations
- Notification of authorities/incident reporting
- Emergency Coordinator responsibilities
- Decontamination and cleanup procedures

management level personnel need broad training in all aspects of dangerous waste management. This provides the necessary background and perspective for decision-making activities which can impact both the operation and condition of the facility and the health and welfare of the surrounding community. Facility operations personnel need site-specific training appropriate to their individual job activities. Table H3-2 shows the present level of training for each job title.

At a minimum, every employee involved in the facility operations involving dangerous waste treatment or storage receives orientation and introductory training in compliance with 29 CFR 1910. Currently, OSHA requires 24 hours of training to satisfy this requirement. No employee is permitted to work unsupervised until this training is complete. A certificate of completion (shown in Appendix H-1) is issued to every employee as he completes the training. The training will be complete within 6 months of employment at Chemical Processors, Inc.

H4.0 CONTINUING TRAINING

Revised, May 1990

40 CFR 264.16(3)(c), 270.14(b)(12)
WAC 173-303-330(1)(b)&(2)(b), 806(4)(a)(xii)

Chemical Processors, Inc. also conducts a continuing training program. Continuing training is designed to maintain proficiency in job skills, increase safety, quality, and compliance consciousness and teach new skills.

	Facility and Company Overview	Regulatory Requirements	Waste Handling and Tracking	Recordkeeping	Inspections	Sampling and Analysis	Safety – General	Personal Protective Equipment	First Aid	Emergency Response
Director of Operations – Corporate **	E	B	B	B	E	B	B	B	B	E
Compliance Manager – Corporate	B	E	L	L	B	B	B	B	B	B
Plant Manager *	E	B	E	E	E	B	E	B	E	E
Plant Supervisor **	B	B	E	E	B	B	B	B	E	E
Foremen **	B	B	B	B	B	B	B	B	E	E
Hazardous Waste Technicians	L	L	L	L	L	L	L	L	L	L

L – Training Limited to Area of Responsibility
B – Broad Training
E – Extensive Training

* Primary Emergency Coordinator
** Alternate Emergency Coordinators

Chemical Processors, Inc.
Pier 91 Facility

Training Related to Job Title

Table H3-2

Continuing training consists of, but is not limited to the following:

- Monthly safety meetings
- Monthly operational reviews
- Annual refresher training
- Annual fire response training
- Annual emergency response reviews
- Annual PPE/Respirator reviews
- Regular CPR/First Aid Training
- Periodic training to inform employees of new or revised regulatory requirements
- Annual DOT Training-Labeling, Manifesting, Placarding
- Monthly regulatory training

At a minimum, every employee involved in operations associated with dangerous waste treatment or storage at the facility receives 8 hours of annual refresher training. This training updates all previous training. It includes a review of site operations and the types and characteristics of wastestreams handled at the facility. The Contingency Plan performance in emergency response is also reviewed. Changes in pertinent regulations are identified and current compliance status is reviewed.

H5.0 TRAINING PROGRAM ADMINISTRATION

The Chemical Processors, Inc. Regulatory Affairs Department has overall responsibility for the development of the training program and oversees its administration. The Operations Department has direct responsibility for implementing the training. Responsible personnel in both of these departments designate qualified instructors, approve

the training program content and format, provide the necessary resources and ensure training records are maintained.

The selection of qualified instructors, use of effective training formats, and establishment of meaningful methods for evaluating employee's learning are described in the following sections.

H5.1 Training Personnel Qualifications

40 CFR 264.16(a)(2)
WAC 173-303-330(1)(a)

General orientation training is conducted by the employee's supervisor or a designated representative. Instructors for some job-specific training modules are in-house experts in the specific field and have broad experience. These in-house experts may include plant operators, operations supervisors, safety specialists, engineers, chemists or other professionals. In some cases, training is performed by off-site experts. An example of this would be First Aid Training conducted by a certified first aid instructor. The instructor for on-the-job training is a supervisor or operator who is skilled in the current methods of performing the task. Training sessions related specifically to waste management are directed by a person trained in dangerous waste management procedures.

H5.2 Training Format

Training is conducted in meetings, small discussion groups, classroom settings or at the employee's work-site. Lectures, plant tours and field demonstrations are also used as training methods. Much of the training is on-the-job training performed at the site, using actual equipment under

actual job conditions with close supervision. Programmed instruction such as video tapes or printed materials are sometimes used. For some training, courses and teaching materials developed by experts in the field are used. In addition, some of this training is accomplished by attending seminars, short-courses or college courses.

H5.3 Training Effectiveness Evaluation

Qualitative evaluation techniques are used to measure a trainee's proficiency level. Examples of evaluation techniques are performance in written and oral exams and careful observation of on-the-job performance. The supervisor determines whether the trainee has mastered the skills necessary to perform the tasks described in the job description. The employee and supervisor evaluate the employee's training requirements at personnel review sessions at least annually.

In addition, the training program itself is evaluated by the Regulatory Affairs and Operations Departments. New and useful instructional material is incorporated to improve the quality and effectiveness of the training program. Periodically, employees critique formal training sessions using a training evaluation form. This form is found in Appendix H-1, Training Forms.

H6.0 DOCUMENTATION OF TRAINING

40 CFR 264.16(d)(4)&(e)
WAC 173-303-330(2)(c)&(e)

Training records of employees working at the facility are maintained at the facility by the Plant Manager. Training records of support personnel from the corporate office are maintained by the Regulatory Affairs Department in the training file at the corporate offices. Training records of former employees are kept at least 3 years from the date the employee last worked at the facility. Training records of current personnel are kept at the site until closure of the facility. For at least 3 years after closure of the facility, personnel training records will be kept at the corporate offices.

A sign-in sheet is distributed during each meeting which records attendance at training sessions. The sign-in sheet contains a written description of the training topic, the instructor, date and hours of training and a list of attendants and their signatures. This form is shown in Appendix H-1.

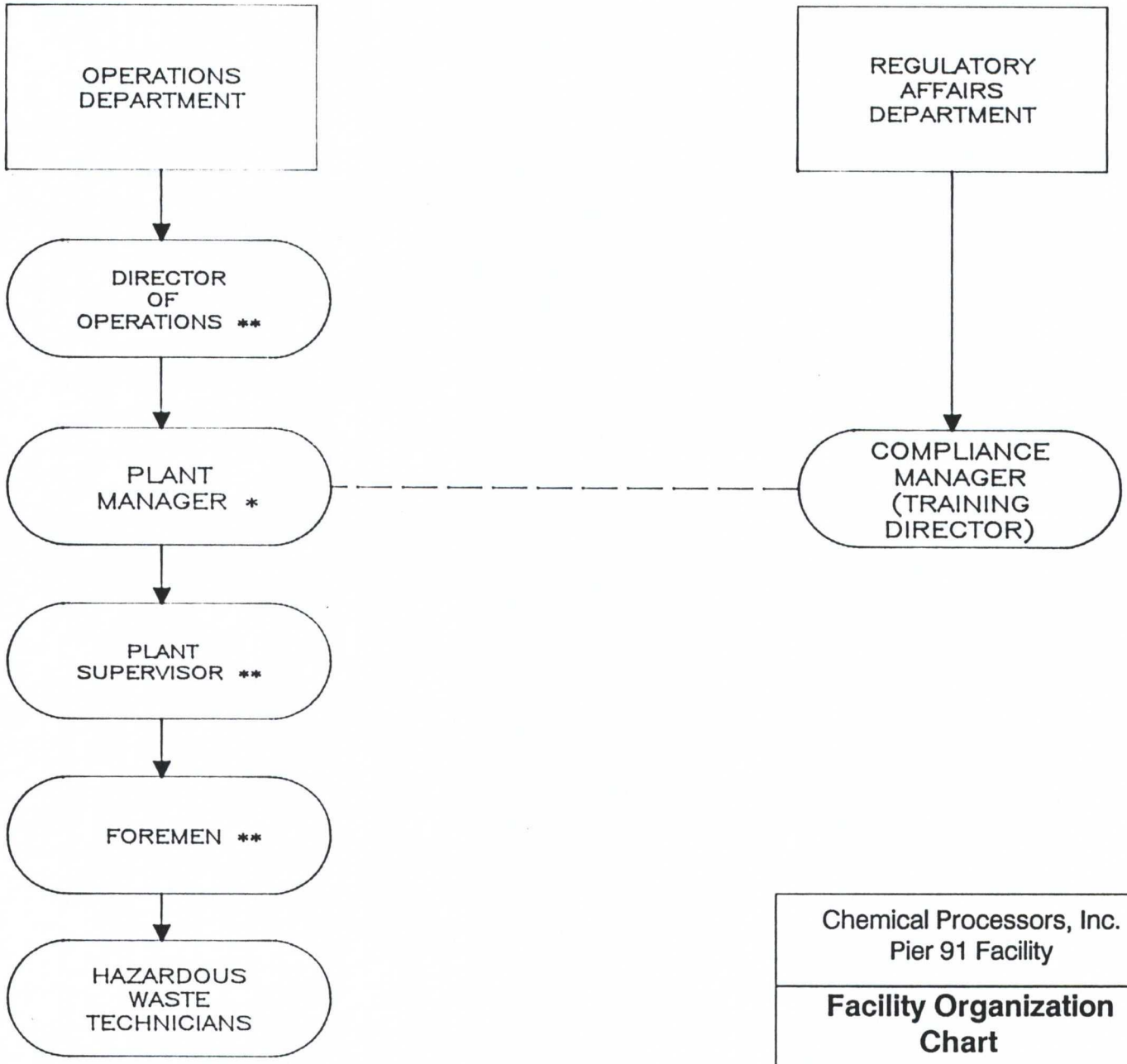
A personal training log for each facility employee is kept at the facility. All orientation, introductory, continuing and on-the-job training is logged on this form by the plant manager. Examples of training forms are included in Appendix H-1.

In addition to the personal training log, training records include copies of certificates of attendance at seminars, tests and documentation that the required training for each employee has been satisfactorily completed.

H7.0 PERSONNEL DUTIES, JOB DESCRIPTIONS AND REQUISITE QUALIFICATIONS

40 CFR 264.16(d)(1)&(2)
WAC 173-303-330(2)(a)

This section contains the job descriptions for positions involved with the handling and/or management of dangerous wastes at Chemical Processors, Inc. Pier 91 Facility. These job descriptions identify the responsibilities, duties, and requisite qualifications of each position. The facility organization chart shown in Figure H7-1 depicts the reporting relationships of all job positions related to the management of dangerous wastes at the Pier 91 Facility. A list of the names of each person filling each position is kept with the written training plan at the facility.



* Primary Emergency Coordinator
** Alternate Emergency Coordinator

Chemical Processors, Inc.
Pier 91 Facility

Facility Organization Chart

Figure H7-1

JOB TITLE: Plant Manager - Pier 91 07/22/88

REPORTS TO: Director of Operations

FUNCTION: Manage the day-to-day operations of the plant to ensure the plant operates safely, efficiently and in compliance with company policy and all applicable local, state and federal regulations.

DUTIES:

Manage and control personnel requirements and scheduling to ensure maximum productivity.

Conduct and/or coordinate plant tours for customers, regulatory agencies, employees and other approved visitors.

Develop and implement the personnel training program including orientation, on-the-job and continuing training.

Coordinate material flow including scheduling, receiving, sampling and analysis, treatment, transfer, sewer discharge and off-site disposal.

Issue routine operating reports to sales/operations departments as needed.

Assist in design, modification and implementation of new or existing material handling equipment and treatment processes to improve the efficiency of the plant operations.

Oversee compliance with the Hazard Communication Standard including training, availability of material safety data sheets (MSDS) and proper storage, labeling and handling techniques.

Develop and enforce job safety practices including use of personal protective equipment, good housekeeping techniques, lockout/tagout procedures, mobile equipment operation, etc. to ensure a safe and healthy work environment for all employees.

Conduct plant inspections to ensure compliance with all applicable local, state and federal regulations and identify and implement corrective action when necessary.

Ensure equipment, tools and supplies are provided and adequately maintained for daily use.

Provide cost analysis of material treatment and disposal methods including review of charges and billings to ensure accuracy.

Review profiles and recommend treatment methods and charges.

Develop the plant operating budget and monitor on an ongoing basis by comparing actual expenses to budget and account for variances.

Maintain all required documents and records in a current, accessible and orderly manner. This includes maintaining training records, reconciling manifest discrepancies, developing waste profile sheets on in-plant generated wastes and other related information.

Implement and coordinate published Contingency Plan emergency response procedures, as needed and act as Primary Emergency Coordinator for the Pier 91 Facility.

Direct the operations of the plant ensuring all policies and practices are in compliance with Equal Opportunity regulations and Affirmative Action commitments.

SPECIFIC SKILLS REQUIRED:

Knowledge of chemistry with an emphasis in hazardous waste treatment and handling. Thorough knowledge of all plant operations and equipment. Ability to express self effectively, both orally and in writing. Ability to establish effective working relationships with operational groups, customers and regulators.

EDUCATION AND EXPERIENCE REQUIRED:

B.S. degree or equivalent experience and training. Minimum of 3 years experience in dangerous waste treatment operations or equivalent. Chemical plant experience desirable. Working knowledge of all applicable local, state and federal regulations. Minimum one year supervisory experience.

WORKING CONDITIONS:

Outdoor plant environment where there is exposure to dirt, dust, noise, odors, temperature extremes, machinery and a potential exposure to hazardous chemicals and fumes: 20%

Normal office environment: 80%

OTHER REQUIREMENTS:

Facial hair must conform to requirements of proper fitting and sealing of respiratory equipment.

JOB TITLE: Plant Supervisor - Pier 91 07/07/88

REPORTS TO: Plant Manager

FUNCTION: Supervise foremen, production personnel and manage operations to ensure the proper handling and treatment of all wastestreams in compliance with company policy and local, state and federal regulations. Act as Plant Manager in his absence.

DUTIES:

Coordinate material flow including scheduling, receiving, sampling and analysis, treatment, transfer, sewer discharge and off-site disposal.

Plan and schedule the daily work activities of the production crew so that all required work is accomplished in a timely manner. Coordinate work assignments between day, swing and graveyard shifts based on production schedules.

Assign work to foremen and monitor their performance for quality, quantity, safety conformance and utilization of resources to ensure maximum effectiveness, productivity and regulatory compliance.

Assign work to production crew. Supervise their activities throughout the shift. Audit the crew's performance for quality, quantity, safety conformance and utilization of resources to ensure maximum effectiveness, productivity and regulatory compliance.

Investigate methods improvement projects to improve work performance of the crew and increase efficiency, productivity and compliance with regulations.

Assist in presentation of personnel training program by providing training in safety, regulations, policies and procedures.

Inspect production area and equipment including properly completing required inspection forms, identifying regulatory compliance and maintenance problems and implementing appropriate corrective action.

Complete and issue routine paperwork and operating reports, including plant inventory, treatment and transfer records, manifests, waste receipts, tank logs, reconciling manifest discrepancies, developing waste profile sheets on in-plant generated wastes and other related information. etc.

Enforce and monitor safety rules and practices to ensure a safe and healthy work environment for all employees.

Responsible for plant compliance with safety and housekeeping practices and rules. Oversee plant safety committee. Conduct crew safety meetings. Make recommendations to achieve and maintain safe working conditions.

Report and respond to plant emergencies, as needed. Perform published Contingency Plan emergency response procedures and act as Alternate Emergency Coordinator for the Georgetown Facility.

SPECIFIC SKILLS REQUIRED:

A knowledge of math and science with an emphasis in chemistry. Good problem solving and analytical skills. Ability to express self effectively, both orally and in writing. Ability to establish effective working relationships with employees, management, customers and regulators.

EDUCATION AND EXPERIENCE REQUIRED:

Bachelors degree or 5-10 years experience in dangerous waste and/or chemical handling procedures. Chemical plant experience desirable. Supervisory experience required. First aid and safety training required.

WORKING CONDITIONS:

Outdoor plant environment where there is exposure to dirt, dust, noise, odors, heat and cold, machinery and potential exposure to hazardous chemicals and fumes: 60%

Normal office environment: 40%

OTHER REQUIREMENTS:

Facial hair must conform to requirements of proper fitting and sealing of respiratory equipment.

JOB TITLE: Foreman - Pier 91 07/22/88

REPORTS TO: Plant Manager and/or Plant Supervisor

FUNCTION: Supervise production personnel to ensure the proper handling and treatment of all wastestreams in compliance with company policy and local, state and federal regulations. Act as Plant Manager in his absence.

DUTIES:

Plan and schedule the daily work activities of the production crew so that all required work is accomplished in a timely manner. Monitor production schedules and progress to coordinate work between shifts.

Assign work to production crew and supervise their activities throughout the shift. Audit the crew's performance for quality, quantity, safety conformance and utilization of resources to ensure maximum effectiveness and productivity.

Investigate methods improvement projects to improve work performance of the crew and increase efficiency, productivity and compliance with regulations.

Assist in presentation of personnel training program by providing on-the-job training.

Inspect production area and equipment including properly completing required inspection forms, identifying regulatory compliance and maintenance problems and implementing appropriate corrective action.

Complete and issue routine paperwork and operating reports, including plant inventory, treatment and transfer records, manifests, waste receipts, tank logs, etc.

Monitor sewer discharge operation.

Enforce and monitor safety rules and practices to ensure a safe and healthy work environment for all employees.

Enforce and monitor plant compliance with safety and housekeeping rules and practices to ensure a safe and healthy work environment. Conduct crew safety meetings. Make recommendations to achieve and maintain safe working conditions.

Report and respond to plant emergencies, as needed. Perform published Contingency Plan emergency response procedures and act as Alternate Emergency Coordinator for the Pier 91 Facility.

Maintain inventory of treatment chemicals.

SPECIFIC SKILLS REQUIRED:

A knowledge of math and science with an emphasis in chemistry. Good problem solving and analytical skills. Ability to express self effectively, both orally and in writing. Ability to establish effective working relationships with employees, management, customers and regulators. Forklift experience.

EDUCATION AND EXPERIENCE REQUIRED:

High school diploma or equivalent experience and training. Minimum 2 years experience in dangerous waste and/or chemical handling procedures. Chemical plant experience desirable. Supervisory experience required. First aid and safety training required.

WORKING CONDITIONS:

Outdoor plant environment where there is exposure to dirt, dust, noise, odors, heat and cold, machinery and potential exposure to hazardous chemicals and fumes: 90%

Normal office environment: 10%

OTHER REQUIREMENTS:

Able to work any shift. Facial hair must conform to requirements of proper fitting and sealing of respiratory equipment. Capable of climbing ladders and stairs and standing for several hours at a time.

JOB TITLE: Hazardous Waste Technician/Operator - Pier 91
07/07/88

REPORTS TO: Foreman and/or Plant Manager

FUNCTION: Perform a variety of duties related to receiving, processing and shipping hazardous materials.

DUTIES:

Ship and receive materials in compliance with operational procedures and regulatory requirements. Report discrepancies to supervisor.

Distribute materials to proper storage and treatment areas and perform discharge operations. This includes operating industrial mobile equipment such as forklifts, trucks, sweepers, bulldozers, backhoes, etc. and selecting, inspecting and operating pumps, hoses, fittings, gaskets, compressors.

Determine volume of tanks and containers to prevent overfilling during transfer operations.

Sample, analyze and record analytical data to verify wastestream identification and assure safe and appropriate consolidation, treatment, transfer and disposal operations.

Add treatment chemicals to wastestream in compliance with operational procedures.

Pick-up and deliver samples, equipment or materials inside or outside plant, as directed.

Conform to all job safe operating procedures including keeping equipment and work area in a clean and orderly condition, using proper chemical storage, labeling and handling techniques and using personal protective equipment.

Inspect work area for proper storage, labeling, leaks, equipment and material deficiencies and process malfunctions. Report discrepancies to supervisor.

Prepare and maintain all applicable records, paperwork and reports required by the job.

Perform or assist maintenance mechanic in making minor repairs and adjustments to equipment.

Report and respond to plant emergencies, as needed, and in accordance with the Contingency Plan.

EDUCATION AND EXPERIENCE REQUIRED:

High school diploma or equivalent training and experience. Emphasis on math and chemistry desirable. Chemical plant experience desirable.

SPECIFIC SKILLS REQUIRED:

Capable of climbing ladders and stairs and able to stand for several hours at a time. Able to lift 100 pounds. Demonstrated adaptability to training; must be able to pass training program within the first 6 months of employment.

WORKING CONDITIONS:

Outdoor plant environment where there is exposure to dirt, dust, noise, odors, heat and cold, machinery and where there is potential exposure to hazardous chemicals and fumes: 90%

Normal office environment: 10%

OTHER REQUIREMENTS:

Facial hair must conform to requirements for proper fit, seal and function of respiratory equipment.

JOB TITLE: Hazardous Waste Technician/Maintenance Mechanic - Pier 91 07/07/88

REPORTS TO: Foreman and/or Plant Manager

FUNCTION: Maintains all plant facilities, machinery and equipment and perform plant operational duties, as requested.

DUTIES:

Maintain, inspect, test, install, adjust, remove, disassemble, repair and replace plant facilities, machinery and equipment. Includes welding, brazing, plumbing and electrical repair work. Report any deficiencies or malfunctions to supervisor.

Maintain inventory of repair supplies and requisition materials as needed.

Perform routine service and repairs on mobile equipment including checking oil, fuel, water, tires, brakes, lights, horns. Report defects to supervisor.

Inspect, maintain and repair emergency equipment such as fire extinguishers, foam fire fighting system, spill stations, safety showers, eyewash stations, etc. daily and after use. Report defects and deficiencies to supervisor.

Inspect drainage system, sumps and sump pumps, as required and at the beginning and end of shifts during rainy weather. Follow up with appropriate corrective action.

Maintain logs, records and all required forms including daily maintenance log in a current, accessible and orderly manner.

Sample, analyze and record data to verify wastestream identification and assure safe and appropriate consolidation, treatment, transfer and disposal operations.

Inspect manifests of loads received and report discrepancies to supervisor. Prepare paperwork for outgoing loads including bills of lading, manifests and labels.

Perform or assist forklift operator in loading/unloading, treatment and material transfer operations as necessary.

Conform to all safe operating procedures including keeping equipment and work area in a clean and orderly condition, using personal protective equipment, and proper chemical handling, storage and labeling.

Report and respond to plant emergencies, as needed and in accordance with the Contingency Plan.

EDUCATION AND EXPERIENCE REQUIRED:

A knowledge of math and blue-print reading. Skilled at welding, plumbing, pipefitting and electrical work. High school diploma and completion of a technical or vocational school or equivalent on-the-job training and experience. Previous maintenance work experience desirable.

SPECIFIC SKILLS REQUIRED:

Good problem solving skills, manual dexterity and mechanical aptitude. Capable of climbing ladders and stairs and able to stand for several hours at a time. Able to lift 100 pounds.

WORKING CONDITIONS:

Outdoor industrial plant environment where there is exposure to dirt, dust, noise, odors, heat and cold, machinery and where there is potential exposure to hazardous chemicals and fumes: 90%

Normal office environment: 10%

OTHER REQUIREMENTS:

Facial hair must conform to requirements for proper fit, seal and function of respiratory equipment.

JOB TITLE: Manager Compliance 06/22/88

REPORTS TO: Director, Regulatory Affairs

FUNCTION: Direct the activities necessary to comply with regulatory requirements and manage the environmental compliance program for company facilities, off-site projects and transportation.

DUTIES:

Direct plant compliance and inspection program to ensure operations and facilities meet federal, state and local requirements.

Provide assistance with regulatory compliance to the various departments and act as liaison with various regulatory agencies.

Provide regulatory compliance supervision for special projects and outside field services.

Supervise the activities of the Compliance Staff. Evaluate their performance and determine short and long term objectives and priorities.

Develop, coordinate and implement training program for plant, transportation, special projects, field services, support and administrative personnel.

Provide staff support to company sponsored community programs and act as company representative, as requested.

Evaluate and investigate all plant and transportation incidents to determine if reportable to federal, state and local agencies. Compile and submit both verbal and written reports to appropriate agencies, as required.

Review and approve all incoming generator wastestream profiles for regulatory compliance. Interface with sales personnel, customers and contractors.

Manager Compliance (continued) 06/22/88

EDUCATION AND EXPERIENCE REQUIRED:

B.S. degree in a related field and with specialized training courses and experience in hazardous waste management. Minimum 3 years experience in hazardous waste or environmental affairs management with some experience in a related governmental agency or regulated facility or project. Supervisory experience required.

SPECIFIC SKILLS REQUIRED:

Thorough working knowledge of federal, state and local environmental regulations. Good knowledge of plant and transportation operations and special project requirements. Skilled in supervision of technically trained personnel. Ability to express self effectively, both orally and in writing. Ability to establish effective working relationships with operational groups and regulators.

WORKING CONDITIONS:

Outdoor industrial plant environment where there is exposure to dirt, dust, noise, odors, heat and cold, machinery and where there is potential exposure to hazardous chemicals and fumes: 25%

Normal office environment: 75%

OTHER REQUIREMENTS:

Facial hair must conform to requirements for proper fit, seal and function of respiratory equipment.

JOB TITLE: Director of Operations 06/22/88

REPORTS TO: Vice President of Operations

FUNCTION: Direct the overall operations of the plants to ensure facilities are safe, in compliance with all applicable federal, state and local regulations and are operated as efficiently and profitable as possible.

DUTIES:

Provide direction and support to plant management and continually assess the plants' processes, expenses, procedures, equipment and personnel needs.

Conduct periodic facility inspections and evaluate present procedures and processes to ensure compliance with all applicable federal, state and local regulations.

Review regulations and assist Regulatory Affairs in the drafting and review of permits affecting the facilities.

Provide cost analysis of material treatment and disposal methods including review of charges and billings to ensure accuracy.

Assist with the research and purchase of equipment to improve the efficiency of operations.

Assist with the research, development and implementation of new treatment processes.

Review profiles and recommend treatment methods and charges.

Interact with regulatory agencies and community representatives to promote the services and reputation of the company.

Oversee the plants' training program to ensure all employees are properly trained.

Direct the plant operations to ensure equal opportunity is provided to all employees and applicants for employment and that the Affirmative Action goals are actively supported.

Report and respond to plant emergencies as needed. Perform published Contingency Plan emergency response procedures and act as Alternate Emergency Coordinator all facilities.

EDUCATION AND EXPERIENCE REQUIRED:

Bachelors degree in a related field or equivalent training and experience. Minimum 5 years progressively responsible experience with a minimum of 3 years management experience in the hazardous waste industry. Extensive training in all related regulations required.

SPECIFIC SKILLS REQUIRED:

Thorough working knowledge of all facility operations. Good knowledge of federal, state and local regulations. Ability to express self effectively, both orally and in writing. Ability to establish effective working relationships with operational groups and regulators.

WORKING CONDITIONS:

Outdoor industrial plant environment where there is exposure to dirt, dust, noise, odors, heat and cold, machinery and where there is potential exposure to hazardous chemicals and fumes: 25%

Normal office environment: 75%

OTHER REQUIREMENTS:

Facial hair must conform to requirements for proper fit, seal and function of respiratory equipment.

APPENDIX H-1

TRAINING FORMS

CHEMICAL PROCESSORS, INC.
TRAINING EVALUATION QUESTIONNAIRE

DATE:
NAME:
JOB TITLE:
FACILITY:

1. How will this training session help you to perform or understand your job better?

2. What information presented today seemed unnecessary or confusing?

3. How could this training session be improved?

11/87

TRAINING LOG
CHEMICAL PROCESSORS, INC.

SIGN-IN SHEET

Training Module or Topic:

Instructor:

Facility:

Date:

Hours:

PRINT NAME	SIGNATURE	DATE

12/87

CHEMICAL PROCESSORS, INC.
EMPLOYEE TRAINING LOG

Name:_____

	DATE/HOURS/INIT	DATE/HOURS/INIT
Facility and Company Overview		
Regulatory Overview		
Waste Handling and Tracking Procedures:		
Waste Characteristics and Compatibility		
DOT/EPA Labeling, Packaging, Manifests, Placards		
Sampling, Analysis		
Inspections		
Waste Tracking		
Recordkeeping		
Waste Profile System		
Lab Packing		
Guidelines for Handling, Packaging and Storing		
The Transporter's Checklist		
The Uniform Hazardous Waste Manifest		
Packaging		
Handling Dangerous Wastes - An Introduction		
Chemical Awareness Modules		
Waste Transfer Operations		
Safety:		
Mobile Equipment Operation		
PPE - Selection and Use		
First Aid/CPR		
Confined Space Entry		
Lockout/Tagout		
Respirator Training and Fit Test		
Hearing Conservation		
Medical Surveillance		
Safe Job Procedures		
Hazard Awareness		
Housekeeping		
Lifting Techniques		
Accident Investigation		
Safety Showers and Eyewashes		
Chemical Hazard Communication		

Chemical Processors, Inc. Employee Training Log, Continued

Name:_____

	DATE/HOURS/INIT	DATE/HOURS/INIT

Emergency Response Procedures:

- Contingency Plan
- Evacuation Procedures
- Emergency Equipment
- Communication/Alarm Systems
- Spill Response/SPCC
- Fire & Explosion Response
- Shutdown of Operations
- Waste Feed Cutoff Operations
- Incident Reporting
- Decontamination

Others (specify):

CHEMICAL PROCESSORS, INC. TRAINING CERTIFICATION FORM

This is to certify that _____

has successfully completed the orientation and introductory training required for his/her position.

_____
Facility Training Director

_____
Regulatory Training Director

_____
Date

12/87

Section I

SECTION I

CLOSURE PLAN AND CLOSURE COST ESTIMATES

SECTION I. CLOSURE PLAN AND CLOSURE COST ESTIMATES

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SECTION I. CLOSURE PLAN AND CLOSURE COST ESTIMATES

40 CFR 264 Subparts G and H
WAC 173-303-806(4)(a)(xiii), 610

I1.0 CLOSURE PLAN

Revised, January 1990

40 CFR 270.14 (b)(13), 264.112
WAC 173-303-806(4)(a)(xiii), 610(3)

This closure plan describes the procedures that Chemical Processors, Inc. will follow to close the dangerous waste management units at the Pier 91 Facility. Closure activities will be performed in accordance with WAC 173-303-806, 610, 630 and 640 and 40 CFR 264 Subparts G and H.

The closure requirements for waste piles, surface impoundments, land treatment, landfills or incinerators do not apply to the Chemical Processors, Inc. Pier 91 Facility.

The Pier 91 Facility closure plan contains the following:

- -Section I1.1 Facility Description
- -Section I1.2 Closure Performance Standards
- -Section I1.3 Maximum Waste Inventory
- -Section I1.4 Closure Schedule
- -Section I1.5 Closure Activities (including inventory elimination, decontamination procedures and sampling and analysis).

I1.1 Facility Description

Revised, January 1990, December 1990, July 1991, November 1991

USEPA/Ecology Facility Identification Number: WAD000812917

Operator's Name:	Chemical Processors, Inc.
Address:	2203 Airport Way South, Suite 400
	Seattle, Washington 98134
Telephone Number:	(206) 223-0500

Plant Name:	Chemical Processors, Inc.
	Pier 91 Facility
Address:	2001 West Garfield Street
	Pier 91, Port of Seattle
	Seattle, Washington 98119
Telephone Number:	(206) 284-2450

The Chemical Processors, Inc. Pier 91 Facility is located at 2001 West Garfield Street, Pier 91 in the Port of Seattle, King County, Washington. Land use for the facility is permitted and zoned by the City of Seattle as General Industrial Zone 1, with a 45' height limit (IG1 U/45).

The Pier 91 Facility is a 4-acre site used by Chemical Processors, Inc. for waste oil recovery and blending and for tank storage and treatment of dangerous wastes. The existing facility, located on 0.5 acres, consists of a tank system with adequate secondary containment and a centrifuge. The proposed dangerous waste (RCRA-regulated) area, located on 0.2 acres, will include a temporary container storage area for waste generated on site and a truck loading/unloading pad. This Part B Permit Application applies to the existing and proposed dangerous waste areas within the Pier 91 Facility (see Figure I1 1, Pier 91 Facility Site Plan, and Figure I1-2, Dangerous Waste Tank System and Processing Area.

Typical wastestreams processed at the Pier 91 Facility include oil and coolant emulsions, industrial wastewaters including alkalis and industrial waste sludges. Contaminants in the wastestreams may include phenolics, metals, and solvents. In general, these wastestreams are treated in tanks by oxidation, reduction, demulsification, precipitation, neutralization, and heat treatment processes.

I1.2 Closure Performance Standards

Revised, January 1990, July 1990, May 1991, July 1991

40 CFR 264.111, 264.115, 264.178, 264.197
WAC 173-303-610(2)(a)(i),(ii),(iii), (b), (6)

Closure activities at the Chemical Processors, Inc. Pier 91 Facility are designed to meet Federal and State closure performance standards. The closure activities will:

-Minimize the need for further maintenance.

-Control, minimize or eliminate to the extent necessary to protect human health and the environment post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated run-off, or dangerous waste decomposition products to the ground, surface water, ground water or the atmosphere.

-Return the land to the appearance and use of surrounding land areas to the degree possible given the nature of the previous dangerous waste activity.

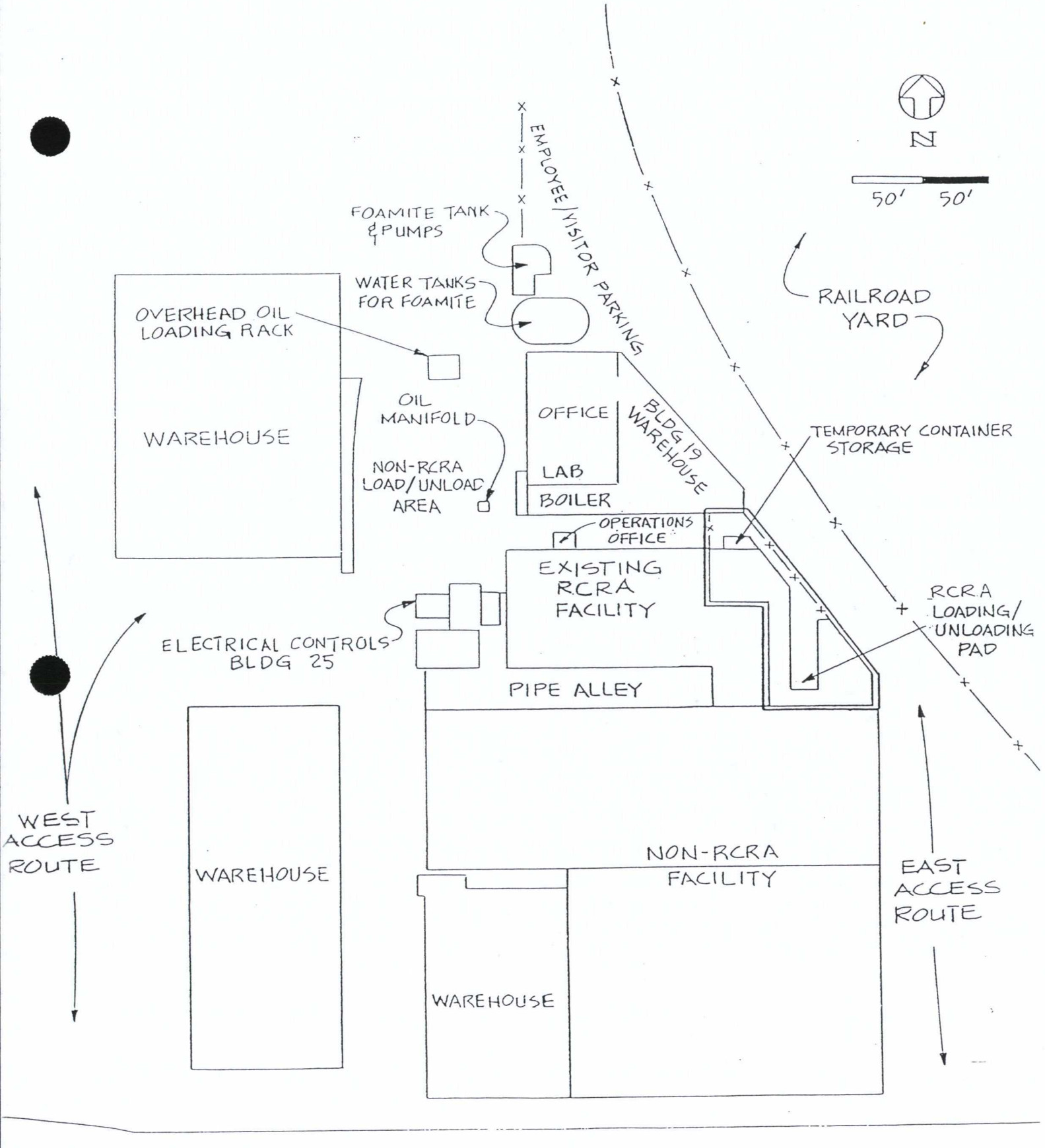
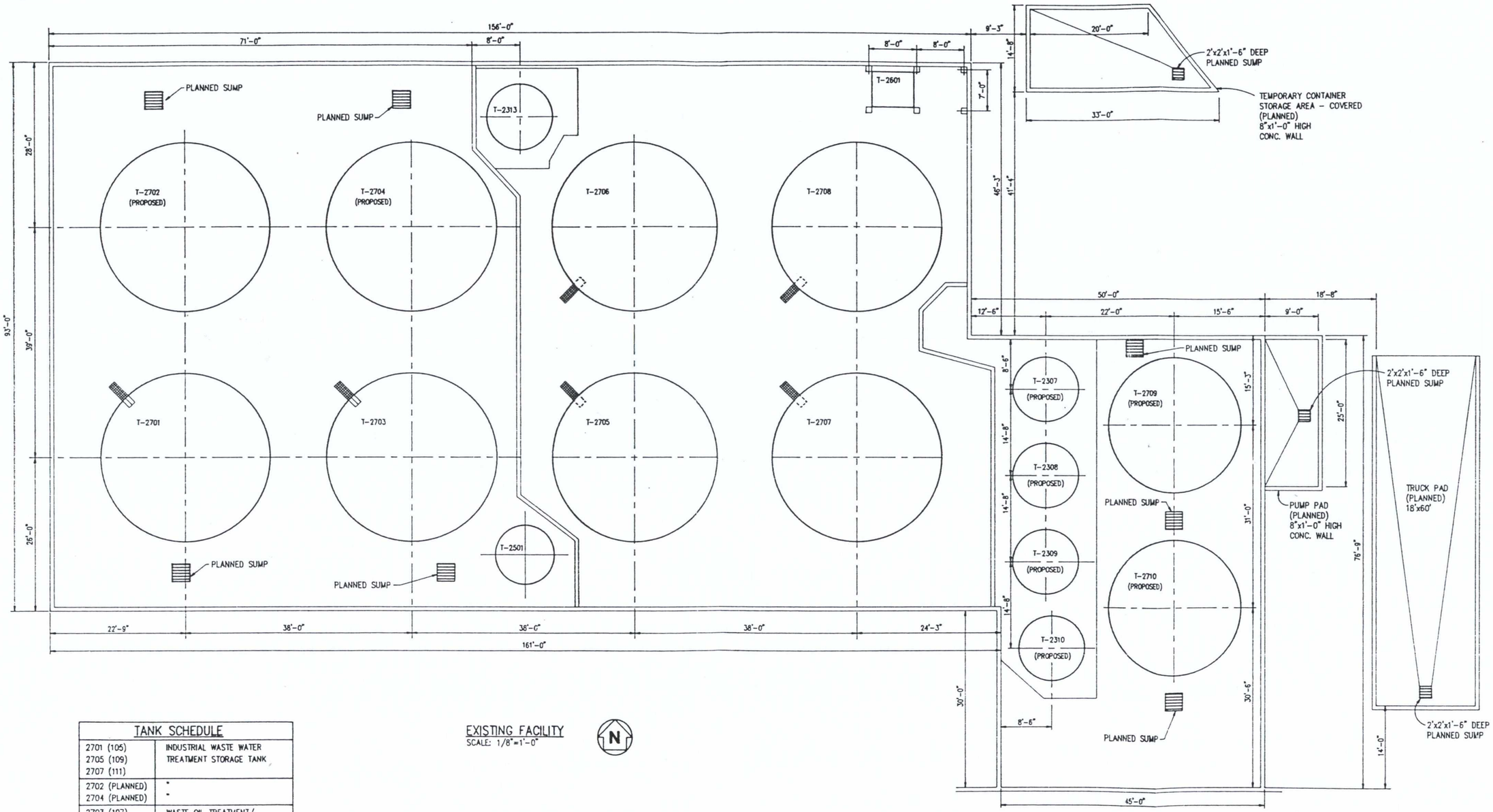


Figure I1-1

Chemical Processors, Inc. Pier 91 Facility
Pier 91 Facility Site Plan



TANK SCHEDULE	
2701 (105) 2705 (109) 2707 (111)	INDUSTRIAL WASTE WATER TREATMENT STORAGE TANK
2702 (PLANNED) 2704 (PLANNED)	" "
2703 (107) 2708 (112)	WASTE OIL TREATMENT/ STORAGE TANK
2706 (110)	OIL/COOLANT TREATMENT AND STORAGE TANK
2709 (PLANNED) 2710 (PLANNED)	WASTE OIL STORAGE TANK "
2313 (164)	HEATED TREATMENT/STORAGE
2307 (PLANNED) 2308 (PLANNED) 2309 (PLANNED) 2310 (PLANNED)	HEATED TREATMENT AND STORAGE TANK
2501	TREATMENT CHEMICAL STORAGE (NOT RCRA-REGULATED)
2601	CENTRIFUGE

EXISTING FACILITY
SCALE: 1/8"=1'-0"

N

Figure I1-2

11-19-91		ADDED PUMP PAD AND TRUCK PAD
		INITIAL RELEASE

BURLINGTON ENVIRONMENTAL

PIER 91 FACILITY - DANGEROUS WASTE TANK SYSTEM & PROCESSING AREA

DESIGNED	DRAWN MJR	CHECKED
SCALE 1/8"=1'-0"	DRAWING NO. D-88-21-S2	APPROVED
DATE		SHEET 1 of 1

EISI consulting engineers
1800 West Emerson Place
Suite 200
Seattle, Washington 98199

1809\SO1 1:96

In general these standards will be met by removing all regulated waste from the facility and by decontaminating or removing all contaminated equipment, containment system components, structures and soil.

Other closure policies and procedures follow:

-A copy of the approved Closure Plan, and subsequent authorized amendments, will be maintained at the facility until closure is complete and certified.

-Changes in facility plans, operations or scheduling may result in an amended Closure Plan. Amended versions will be submitted to the Washington Department of Ecology (Ecology) with a written request for a permit modification as identified in WAC 173-303-610(3)(b).

-Chemical Processors, Inc. will notify Ecology in writing at least 45 days prior to the date final closure is expected to begin.

-Chemical Processors, Inc. will notify Ecology at least 7 days prior to any background or closure performance sampling events.

-Sequential closure of the dangerous waste management units will be followed for closing the entire facility. Refer to Section I1.5, Closure Activities, for a description of the closure procedures for individual waste management units and Section I1.4, Closure Schedule, for the timing of these activities.

-During closure all dangerous wastes within the facility and dangerous waste management units will be processed in the same manner as they would be under normal operating circumstances.

-During closure, dangerous wastes and process residues will continue to be segregated and stored according to their compatibility in the storage tanks and the temporary container storage area.

-Chemical Processors, Inc. intends to use trained employees for closing the various units. However, facility closure cost estimates are based on third party costs (see Section I3.2, Unit Costs for Closure Activities).

-All the required daily, weekly and monthly inspections will be performed until the final closure date arrives. Section F2.0 contains the Inspection Plan.

-The facility will remain fenced and security procedures will be followed during closure activities. Refer to Section F1.0, Security Procedures and Equipment.

-At all times during closure activities, the required and applicable standard operating procedures for proper dangerous waste management will be followed.

-At all times during closure activities the appropriate standard operating procedures for worker health and safety will be followed.

-All dangerous waste storage and treatment tanks and associated equipment, piping and instrumentation will be either decontaminated and salvaged or dismantled and disposed of at an off-site RCRA-permitted facility.

-All mobile or fixed equipment that has been used to process or handle dangerous wastes will be cleaned, decontaminated and re-used or salvaged, or if necessary disposed of at an off-site RCRA-permitted facility.

-The requirements of the Department of Transportation (DOT) 49 CFR will be followed for transporting any dangerous wastes or other equipment or materials off site

-Where removal or decontamination of dangerous waste management units, equipment, soils, dangerous wastes or residues, or other materials is done, then the removal or decontamination will assure that the levels of dangerous waste or dangerous waste residues do not exceed:

1) Background environmental levels, for any waste managed at the facility, which either is listed under discarded chemical products or dangerous waste sources (WAC 173-303-081 or 082) or is designated by the dangerous waste characteristics of WAC 173-303-090; and

2) At least the designation limits of dangerous waste mixtures (WAC 173-303-084), or toxic, persistent, or carcinogenic dangerous wastes (173-303-101 through 103), for any dangerous waste managed at the facility, which is not listed under WAC 173-303-081 or 082 and is not designated by the characteristics of WAC 173-303-090.

Clean-up levels developed under the Model Toxics Control Act (MTCA) clean-up standards of WAC 173-340 may also be applicable for removal or decontamination, if appropriate.

-Decontamination residues and contaminated soil generated from closure activities will be handled as required by WAC 173-303-170 through 230.

-An independent registered professional engineer will monitor all closure activities to ensure they are conducted in accordance with the approved closure plan.

Closure activities to be monitored by the independent engineer include inventory elimination, tank system decontamination, secondary containment (concrete) decontamination, and concrete and soil sampling and analysis. The engineer will visit the facility at least weekly for approximately 6 - 8 hours. These inspections will be part of the facility's operating record.

-Chemical Processors, Inc. will submit to Ecology certification that final closure of the facility has been conducted in accordance with the specifications of the approved closure plan. This certification will be signed by both Chemical Processors, Inc. and an independent professional engineer. The certification will be submitted to Ecology within 60 days of completion of final closure.

I1.3 Maximum Waste Inventory

Revised, January 1990, July 1990, September 1990, December 1990

40 CFR 264.112(b)(2) and (3)
WAC 173-303-610(3)(a)(ii) and (iii)

This section describes the maximum extent of operations which will be unclosed during the active life of the facility. The maximum waste inventory includes all dangerous waste management units. It is based on the storage capacity in gallons for each tank or unit.

The maximum waste inventory is based on the total capacity of all dangerous waste storage tanks on site. The capacities of units which will be used for treatment only, i.e. not for storage, are not included in the maximum waste inventory. The capacities of the sumps, and of tanks which will be exempt from Resource Conservation and Recovery Act (RCRA) regulation are not included in the maximum waste inventory.

The tank capacities used for calculating the maximum waste inventory are included in Table I1-1, Waste Storage and Treatment Units. The maximum waste inventory for the dangerous waste tank system will be 675,950 gallons.

I1.4 Closure Schedule

Revised, January 1990, July 1990, September 1990

40 CFR 264.112(b)(6),(7)
WAC 173-303-610(3)(a)(vii)

This section discusses the schedule for the final closure of the facility. Chemical Processors, Inc. uses a trust fund to establish financial assurance, but the Pier 91 Facility is not expected to close prior to expiration of the permit. Therefore, an expected year of closure is not given.

A sequential closure within the tank system is planned in accordance with the schedule described below. Refer to Figure I1-3, Final Closure Schedule Without Containment Pad or Soil Removal, which is a milestone chart for closure of the tank system. Closure of the tanks will be phased on a progressive schedule to allow for use of the tanks during inventory elimination (see Figure I1-3).

Figure I1-4, Final Closure Schedule with Containment Pad or Soil Removal, is a milestone chart for closure of the facility if containment pad or soil removal is necessary. Section I1.5.3 (Sampling and Analysis) describes methods for evaluating whether containment pad or soil removal with be required.

TABLE I1-1. WASTE STORAGE AND TREATMENT TANKS
Revised, Jan 1990, Jul 1990, Sep 1990, Dec 1990, Jul 1991, Nov. 1991

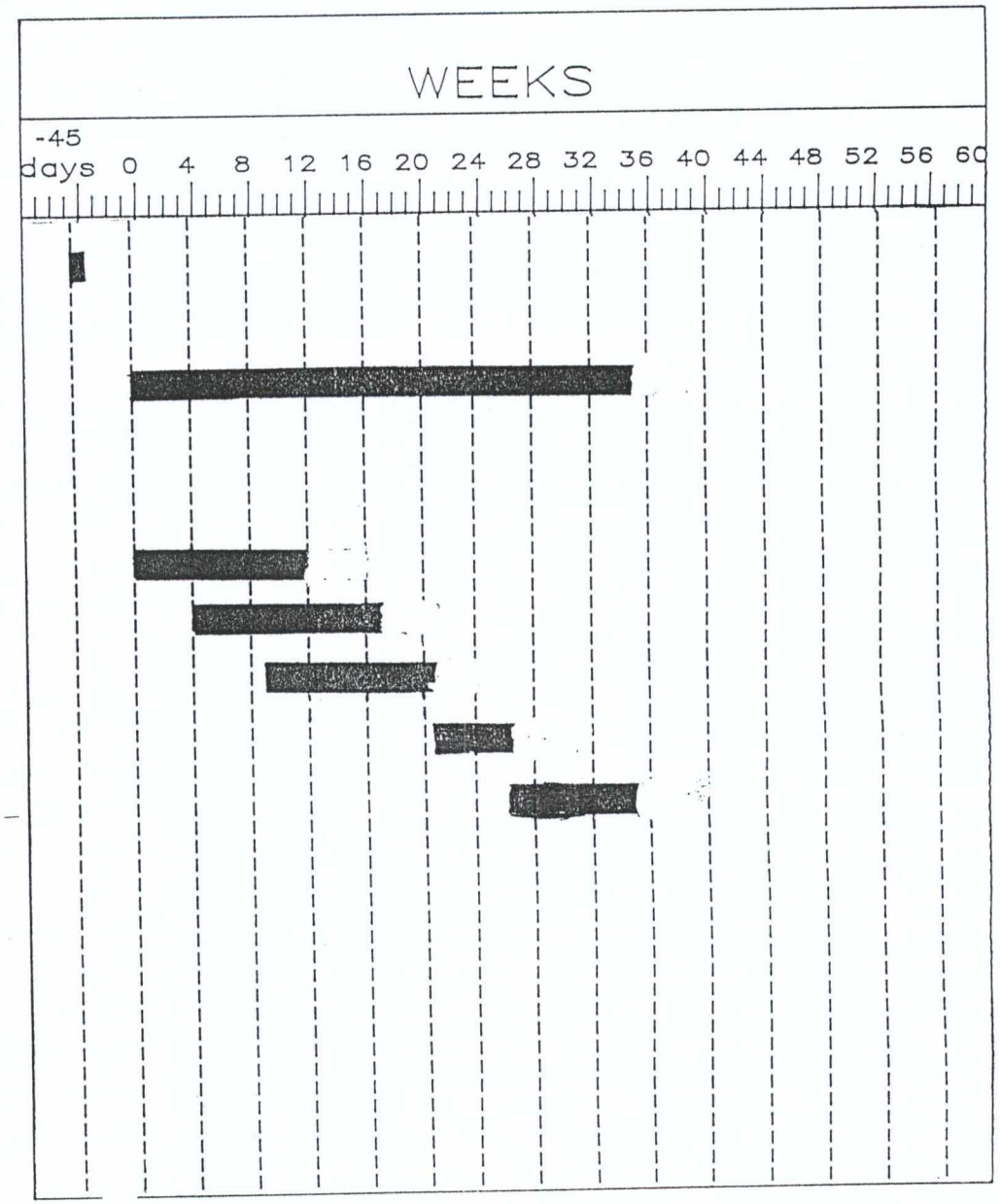
TANK NO.	TANK NAME/USAGE	STATUS	WORKING VOLUME(GAL) PER TANK	TOTAL VOLUME(GAL) PER TANK
2307, 2308, 2309, 2310	Heated Treatment/ Storage	Planned	14,100 ea.	14,810 ea.
2313	Heated Treatment/ Storage	Existing (Formerly tank 164)	14,100	14,810
2501	Treatment Chemical/ Storage (not RCRA-regulated)	Existing	5,287	5,874 (1)
2701, 2705, 2707	Industrial Waste Water Treatment/ Storage	Existing (Formerly tanks 105, 109, & 111)	44,657 ea.	49,485 ea.
2702, 2704	Industrial Waste Water Treatment/ Storage	Planned	91,727 ea.	96,555 ea.
2703 2708	Waste Oil Treatment/ Storage Tank	Existing (Formerly tanks 107, 112)	44,657 ea.	49,485 ea.
2706	Oil/Coolant Treatment and Storage	Existing (Formerly tank 110)	44,657	49,485
2709, 2710	Waste Oil Storage	Planned	52,832 ea.	55,940 ea.

EXISTING TANK STORAGE CAPACITY = 311,720 GAL
PLANNED TANK STORAGE CAPACITY = 364,230 GAL

TOTAL TANK STORAGE CAPACITY (S02) = 675,950 GAL

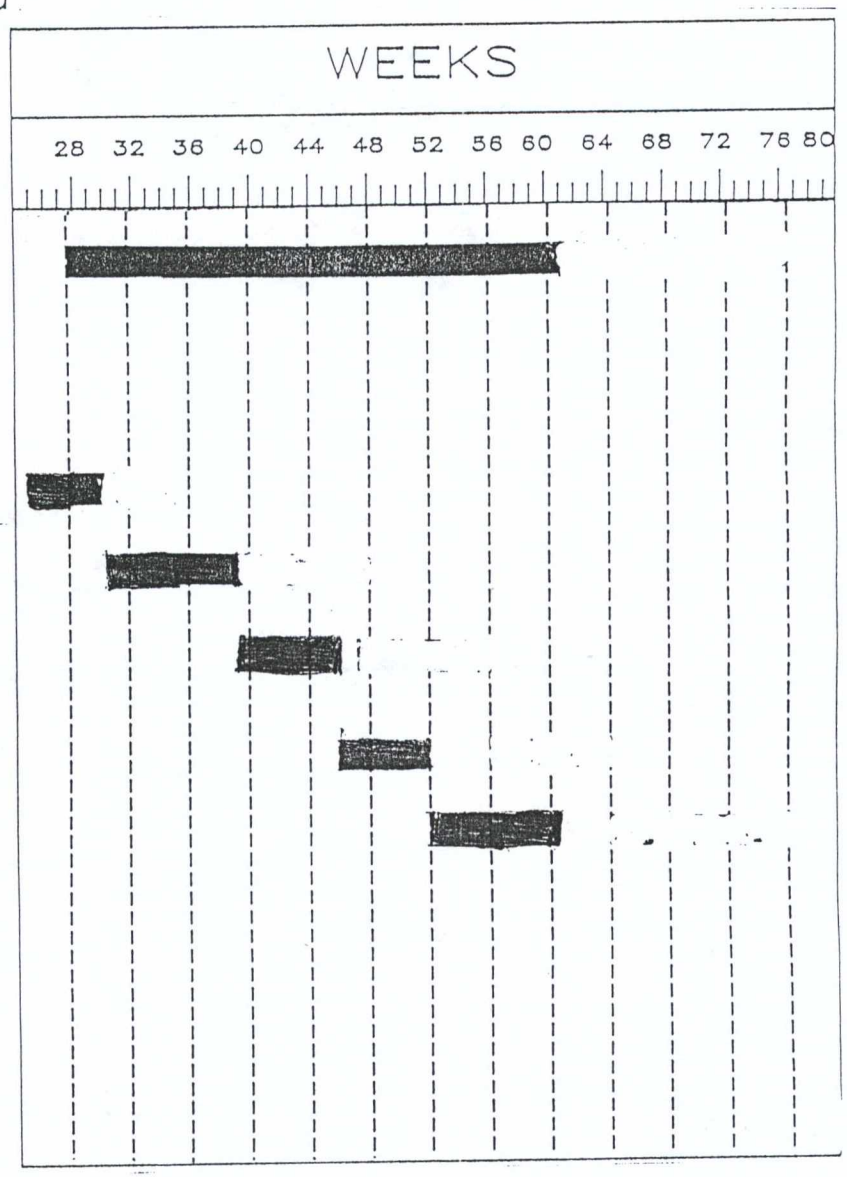
(1) Tank capacity not included in total for maximum waste inventory for reason indicated in parentheses.

Figure I1-3. Final Closure Schedule Without Tank, Containment Pad or Soil Removal - Pier 91 Facility



* Independent registered professional engineer will be on site 6-8 hours per week to monitor closure activities. See Section I1.2 (Closure Performance Standards) for more information. Revision 5,

Figure I1-4. Final Closure Schedule with Tank, Containment Pad or Soil Removal* - Pier 91 Facility



Revision 9/90

* Figure I1-3 identifies the schedule for closure steps prior to containment pad sampling and analysis. Tank, containment pad or soil removal will only be undertaken if necessary. See Section I1.5.3 (Sampling and Analysis) for more information.

** Independent registered professional engineer will be on site 6-8 hours per week to monitor closure activities. See Section I1.2 (Closure formance Standards) for more information.

The schedule for closure of the tank system is described below. Chemical Processors, Inc. will notify Ecology in writing at least 45 days prior to the date final closure is expected to begin, and at least 7 days prior to any background or closure performance sampling events.

Individual tanks within the tank system which do not pass tank assessments and are deemed unfit for use will be emptied and decontaminated using the closure procedures and policies described in this plan. Any new tanks will be installed to meet the standards of WAC 173-303-640(3). Permit modifications will be submitted for any new tanks not already included in this permit application.

The Pier 91 Facility has inspection and maintenance programs which will insure that secondary containment systems meet the standards of WAC 173-303-640(3). Refer to Section F, Procedures to Prevent Hazards.

Closure Schedule - Dangerous Waste Tank System

Closure of the dangerous waste tank system will take longer than 180 days. Therefore, Chemical Processors, Inc. will require an extension of the 180 day closure time allowance. An extension will be required because it will take longer than 90 days to remove the inventory of dangerous wastes in the tank system. Because of the variety and quantity of dangerous waste stored at the Pier 91 Facility, it will take an estimated 84 days to complete inventory elimination within the tank system. An extension will also be required to allow time for completion of subsequent steps in the closure process. Tank decontamination will be phased to begin while inventory elimination is still underway, but will continue for 5 weeks after inventory elimination is complete. Subsequent steps in the closure process (containment pad decontamination, containment pad sampling and analysis, and soil sampling and analysis) will take

an additional 5 to 8 weeks each, due to the size of the tank system areas to be closed. Altogether, closure of the dangerous waste tank system is estimated to require a total of 245 days, or 35 weeks.

The proposed schedule for closure of the dangerous waste tank system at the Pier 91 Facility is summarized below, based on information shown if Figure I1-3 (Final Closure Schedule Without Tank, Containment Pad or Soil Removal). This system includes all tanks within the containment area, the containment pad, the loading/unloading area, and associated sumps. The closure schedule is based on estimated quantities of dangerous waste under maximum inventory conditions.

Tank System Closure

Closure Step	Est. Time Required	Completion Date
Inventory Elimination	12 weeks	Week 12
Tank Decontamination	13 "	Week 17
Containment Pad Decontamination	12 "	Week 21
Containment Pad Sampling and Analysis	2 "	Week 26
Soil Sampling and Analysis	4 "	Week 30

If sampling and analysis indicate that tank, containment pad or soil removal is required, closure of the tank system will take an additional 10 to 22 weeks (as shown below). This schedule is based on information shown in Figure I1-4, Final Closure Schedule With Tank, Containment Pad or Soil Removal. Section I1.5.3, Sampling and Analysis, describes methods for evaluating whether tank, containment pad or soil removal will be required. The proposed schedule for inventory elimination and containment pad decontamination remains the same as shown above.

Tank System Closure with Tank, Containment Pad or Soil Removal

Closure Step	Est. Time Required	Completion Date
Containment Pad Sampling and Analysis	2 weeks	Week 30
Tank Removal	4 "	Week 39
Containment Pad Removal	7 "	Week 46
Soil Sampling and Analysis	6 "	Week 52
Soil Removal	9 "	Week 61

I1.5 Closure Activities

Revised, January 1990, July 1990, September 1990

40 CFR 264.112(b)(1),(3),(4)
WAC 173-303-610(3)(a)(i),(iv),(v)

This section describes closure activities for the waste management units at the Chemical Processors, Inc. Pier 91 Facility. A summary of the closure procedures by unit type is followed by Section I1.5.1, a description of the inventory elimination processes. Decontamination is described in Section I1.5.2., and Section I1.5.3 contains the sampling and analysis plan. Any partial closures will follow the described procedures for that particular type of unit. The centrifuge (process equipment) is included in the closure and decontamination procedures.

Tank System Closure Procedure

40 CFR 264.197
WAC 173-303-640(5)

The tank inventory will be eliminated within 84 days of receiving the final volume of waste. The dangerous waste

inventory in tanks will be removed as described in Section I1.5.1, Inventory Elimination. The types of dangerous wastes handled in the tanks are described in Section C, Waste Characteristics.

As each tank is emptied, decontamination will be performed and verified as described in Section I1.5.2, Decontamination Procedures. Tanks will be removed following decontamination if concrete or soil removal under the containment system is necessary.

After the tanks are emptied, decontaminated and/or removed, the surface of the containment pad beneath the tanks will be decontaminated. If the containment pad cannot be successfully decontaminated, it will be removed and sent to an off-site RCRA-permitted facility. An alternate procedure will be to break up the pad prior to any decontamination and dispose of it at an off-site RCRA-permitted facility.

After the containment pad is decontaminated or removed, foundation soil will be sampled and analyzed for contamination as described in Section I1.5.3, Sampling and Analysis. Any soil found to be contaminated will be removed and disposed of at an off-site RCRA-permitted facility. Clean fill will then replace any excavated soil.

I1.5.1 Inventory Elimination

Revised, January 1990, July 1990

40 CFR 264.112(3)
WAC 173-303-610(3)(a)(iv)

This section is a summary of the various treatment options that will be used to eliminate dangerous waste inventory at closure. Detailed descriptions of the treatment processes and the facility

are found in Section B, Facility Description, and Section D, Process Information.

Dangerous waste inventory (including sludges) will be removed from tanks to the fullest extent practicable. Dangerous wastes processed during closure will be processed in the same manner as they would be under normal operating circumstances. Dangerous waste treatment at the facility includes the following processes:

- Heat Treatment
- Chemical Oxidation
- Chemical Precipitation
- Chemical Reduction
- Neutralization
- Dewatering
- Centrifugation
- Clarification
- Decanting
- Flocculation
- Sedimentation
- Demulsification

Wastes which will require treatment and/or disposal include:

- Oil and coolant emulsions
- Industrial wastewaters including alkalis
- Industrial waste sludges

Emulsified wastestreams are demulsified using the most appropriate combination of treatments based on the results of the Trial Treatment (see Section C2.4, Sampling and Analytical Methodology). These treatments include heat treatment, chemical precipitation, dewatering, clarification and flocculation.

Phenolic wastestreams undergo chemical oxidation and heat treatment. Metal contaminated wastes are treated using chemical precipitation. Any hexavalent chromium that is present is reduced to the trivalent state using chemical reduction. After sedimentation and decanting, the supernatant from the treatment tanks is then discharged to the sewer if it meets the discharge parameter limits. Precipitates from these treatment processes are handled as sludge described below.

Sludges and semi-solids are consolidated and then transported to an off-site RCRA-permitted facility, or they are processed through the centrifuge prior to off-site disposal. The liquid or filtrate is analyzed and treated, using one of the methods described above, based on the analytical results.

Remaining treatment chemicals will be sold for beneficial use, or will be transported for use at another Chemical Processors, Inc. facility. Any decontamination-generated waste will be handled in accordance with all applicable requirements of WAC 173-303-170 through 173-303-230.

I1.5.2 Decontamination Procedures

Revised, Jan. 1990, Jul. 1990, Sep. 1990, Dec. 1990, May 1991

40 CFR 264.112(b)(4), 264.114
WAC 173-303-610(2)(b), (3)(a)(v), (5)

This section describes the decontamination procedures to be used for closure activities at the Chemical Processors, Inc. Pier 91 Facility. The following are general decontamination policies.

- No equipment used in closure activities will be removed from the site until it has been decontaminated.

- All equipment, including the mobile equipment and earth moving equipment, which has come in contact with dangerous waste constituents during closure activities will be decontaminated before use outside the contaminated area.

- During closure, contaminated equipment, containment system components, structures and soils will be decontaminated for salvage or beneficial use, or disposed of at an off-site RCRA-permitted facility.

- Any residues generated during decontamination activities will be handled in accordance with all applicable requirements of WAC 173-303-170 through 173-303-230. Decontamination rinsate will be appropriately treated on-site using methods described in Section I1.5.1, Inventory Elimination.

- All decontamination will be done by scraping and cleaning with either high pressure water, steam or a caustic-type industrial cleaning solution until the equipment and materials show no visible evidence of contamination. The decontamination method an/or type of cleaning solution used will be selected based on the tank's previous contents and physical condition at the time of decontamination.

- Where removal or decontamination of dangerous waste management units, equipment, soils, dangerous wastes or residues, or other materials is done, then the removal or decontamination will assure that the levels of dangerous waste or dangerous waste residues do not exceed:

    1) Background environmental levels, for any waste managed at the facility, which either is listed under

discarded chemical products or dangerous waste sources (WAC 173-303-081 or 082) or is designated by the dangerous waste characteristics of WAC 173-303-090; and

2) At least the designation limits of dangerous waste mixtures (WAC 173-303-084), or toxic, persistent, or carcinogenic dangerous wastes (173-303-101 through 103), for any dangerous waste managed at the facility, which is not listed under WAC 173-303-081 or 082 and is not designated by the characteristics of WAC 173-303-090.

Clean-up levels developed under the Model Toxics Control Act (MTCA) clean-up standards of WAC 173-340 may also be applicable for removal or decontamination, if appropriate.

All tanks and associated pumps and piping will undergo decontamination at closure. The containment surfaces and the collection sumps of the dangerous waste tank system pad including the loading/unloading pad and temporary container storage area will also undergo decontamination. Additionally, all equipment used for closure activities will undergo decontamination. The secondary containment pads will also serve as decontamination staging areas during closure. Decontamination procedures for the dangerous waste management units and decontamination equipment are described below, along with decontamination rinsate management procedures.

Tank System Decontamination

The decontamination procedures discussed in this section will be used for all dangerous waste tanks in the tank system, and associated pumps and piping.

Tanks, pumps and piping will be triple rinsed using a high-pressure wash and an appropriate cleaning solution. Based on EPA guidance, rinsate is estimated to be generated at

approximately 4 gallons per square foot for tanks and 50 gallons per pump for pumps and feedlines. (See Final Report Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subparts G and H), Volume III: Unit Costs, Pope-Reid Associates, Inc., St. Paul, Minnesota for U.S. EPA, Washington D.C., November 1986.)

Rinsate and cleaning residue from all three washings will be managed as a hazardous waste. All rinsate will be removed between each rinse by a vacuum truck or equivalent means. Rinsate and cleaning residues from incompatible tanks will not be comingled. The collected rinsate will be appropriately treated on-site, or when necessary sent off-site for treatment and disposal at a RCRA-permitted facility, using methods described later in this section.

Decontaminated tanks will be left in place on the containment pad, unless removal of concrete or soil under the containment system becomes necessary. As an alternative to decontamination and leaving tanks in place, tanks may be decontaminated and scrapped.

Tanks to be decontaminated and scrapped will be rendered unusable prior to leaving the facility. This will be accomplished by cutting the tanks in half, or cutting the ends off of the tanks. Prior to removal of decontaminated tanks, written proof of decontamination will be obtained from the independent, registered, professional engineer monitoring closure activities.

As another alternative to decontamination and leaving tanks in place, tanks may be rinsed once and disposed as hazardous waste at an off-site RCRA-permitted facility. Tanks may also be decontaminated and re-used or sold for re-use. If these options are chosen, the closure plan and closure cost estimates will be revised accordingly.

Decontamination of Containment Pads

The decontamination procedures discussed here cover all containment surfaces including the tank system pad, temporary container storage pad and the loading/unloading pad. These procedures also apply to the sump systems throughout the dangerous waste facility.

Chemical Processors, Inc. has an inspection program (Section F2.0, Inspection Schedule) to ensure that cracks or gaps in containment pads are repaired. At the time of closure all containment pads will be inspected prior to decontamination. Cracks or gaps where run off could carry rinsate to the underlying soil will be filled and sealed to avoid contamination of the underlying soil. The crack sealant will be resistant to both water and any cleanser designated for use in the area.

Areas which show visual signs of past spillage will receive a preliminary cleaning with a wire brush or equivalent method. The containment pads will then be triple rinsed with a high pressure wash and an appropriate cleaning solution. Based on EPA guidance for tank system decontamination, rinsate is estimated to be generated at approximately 4 gallons per square foot. (See Final Report Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subparts G and H), Volume III: Unit Costs, Pope-Reid Associates, Inc., St. Paul, Minnesota for U.S. EPA, Washington, D.C., November 1986.) This amount may vary depending upon the type of waste managed in the containment system, decontamination rinse method, and containment system size.

Rinsate and cleaning residue from all three washings will be managed as a hazardous waste. All rinsate will be collected in the existing sump systems and removed between each rinse by a vacuum truck or equivalent means. Rinsate and cleaning residues from incompatible containment areas will not be comingled. The

collected rinsate will be appropriately treated on-site, or when necessary sent off-site for treatment and disposal at a RCRA - permitted facility, using methods described later in this section.

The last secondary containment area(s) to be decontaminated within the tank system or container storage buildings will be decontaminated as described below. Final decontamination efforts will be timed to occur after successful decontamination of other secondary containment areas on site has been confirmed, to be sure at least one decontamination staging area is still available if additional decontamination of other areas is necessary.

Visqueen or an equivalent protective material will be placed in a strip at least 10 feet wide around the perimeter of the secondary containment area, to protect against overspray during decontamination and to provide a working surface during the final steps of decontamination. The Visqueen will be lapped over the inside edge of the containment area to prevent releases between the Visqueen and the containment area. Any additional sheets of Visqueen required to surround a containment area will be overlapped at least 1 foot, in a manner that prevents releases due to liquid flow across the overlapped sheets. A temporary berm at least 4" high will be formed along the outer edges of the Visqueen, by rolling the plastic material over several pieces of 2" x 4" lumber, to keep rinsate within the dangerous waste management area.

Decontamination rinsate from high-pressure washing will be collected by vacuum truck and sent off-site to a RCRA-permitted facility for treatment or disposal. After the final high-pressure washing has been completed and decontamination rinsate collected, the Visqueen or equivalent material will removed for disposal at an off-site RCRA-permitted facility.

During the final decontamination stage, a small temporary decontamination area (approx. 10 feet by 20 feet) may be established on site once all concrete containment areas have been decontaminated. This area will be used for decontamination of sampling equipment, personal protective equipment, and other miscellaneous small equipment used during decontamination and sampling efforts. Releases from the temporary decontamination area will be prevented through use of a Visqueen ground cover (or equivalent material) placed as described above, and through proper management of decontamination rinsate and other materials to be sent off-site for treatment or disposal at a RCRA-permitted facility.

Equipment

All equipment used for closure will be decontaminated via scraping and triple rinsing with a high-pressure washer before transport off site or use elsewhere on site. Table I1-2 lists equipment potentially requiring decontamination. Equipment decontamination will be performed in a specific decontamination staging area with adequate containment. All rinsate from decontamination will be collected and treated appropriately at the facility or, when necessary, sent to an off-site RCRA-permitted facility. If equipment cannot be decontaminated it will be disposed of as dangerous waste at an off-site RCRA-permitted facility.

Decontamination Rinsate Management

Rinsate from closure decontamination activities will be collected and treated on-site whenever possible. Closure and decontamination of dangerous waste management units and secondary containment areas will be phased to maximize treatment capabilities. Rinsate from the last tank decontaminated in the dangerous waste system can not be treated on-site and will be shipped off-site for treatment at a RCRA-permitted facility.

Rinsate from the dangerous waste tanks will be shipped off-site for disposal at a RCRA-permitted facility. Rinsing of tanks will take place within the secondary containment system. Table I1-3, Decontamination Rinsate Management, describes the quantity of rinsate generated from each tank or containment system and the appropriate treatment of that rinsate.

TABLE I1-2. EQUIPMENT POTENTIALLY REQUIRING DECONTAMINATION
Revised July, 1990

Trucks (including Vacuum Trucks)
Fork Lifts
Backhoes
Safety Equipment
Ladders
Tools
Jackhammers
Drilling Equipment
Hand Auger
Sampling Equipment
Hoses
Pumps
Pump Connections
Valve Connections
Transfer Lines
Piping
Decontamination Equipment (brushes, buckets, etc.)
Steam Cleaning Equipment
High Pressure Wash Equipment

TABLE I1-3. DECONTAMINATION RINSATE MANAGEMENT Sheet 1 of 2
Revised, July 1990, December 1990, July 1991, November 1991

TANK NO.	CONTENTS	RINSATE[1] GENERATED (GAL)	RINSATE TREATMENT/ DISPOSAL METHOD
Rinsate from tank system, tank system secondary containment areas, temporary container storage secondary containment area, and loading/unloading pad			
2307, 2308, 2309, 2310	Industrial Wastewater	14,048 total	pH adjustment, flocculation/ precipitation, sewer discharge, sludge treatment.
2313	"	3,592 total	"
2701, 2705	"	17,712 total	"
2702, 2704	"	24,736 total	"
2703, 2706, 2708	"	26,568 total	"
2709, 2710	"	17,052 total	"
2707	"	8,856 total	This tank will be reserved for treating rinsate and will be decontaminated last. Rinsate from decontaminating this tank will be transported off site for treatment/ disposal at a RCRA-permitted facility.
Dangerous Waste Tank System	N/A	47,716	pH adjustment, flocculation/ precipitation, sewer discharge, sludge treatment.
Temporary Container Storage Area Secondary Containment	"	1,372	"

TABLE I1-3. (Continued) Sheet 2 of 2

TANK NO.	CONTENTS	RINSATE[1] GENERATED (GAL)	RINSATE TREATMENT/ DISPOSAL METHOD
Load/Unload Pad Secondary Containment	"	4,320	"
Proposed load/unload pump pad Secondary Containment	"	1,172	"
Rinsate Requiring On-Site Treatment and Discharge = 158,294 gal			
Rinsate Requiring Off-Site Treatment and Discharge = 8,856 gal			

(1) Rinsate generated at a rate of 4 gallons/sq. ft. of surface area, per estimates provided in EPA's Final Report Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subparts G and H) Volume III - Unit Costs, November 1986.

I1.5.3 Sampling and Analysis

Revised Jan. 1990, July 1990, Dec. 1990, May 1991, July 1991, August 1991, October 1991, November 1991

40 CFR 264.112(b)(4), 264.114
WAC 173-303-610(3)(a)(v), (5)

This section describes the sampling and analysis procedures to be used for closure activities at the Chemical Processors, Inc. Pier 91 Facility. Chemical Processors, Inc. will notify Ecology at least seven days prior to any background or closure performance sampling events.

Where removal of soils under waste management units (or removal of other materials) is done, then the removal will assure that the levels of dangerous waste or dangerous waste residues do not exceed:

1) Background environmental levels, for any waste managed at the facility, which either is listed under discarded chemical products or dangerous waste sources (WAC 173-303-081 or 082) or is designated by the dangerous waste characteristics of WAC 173-303-090; and

2) At least the designation limits of dangerous waste mixtures (WAC 173-303-084), or toxic, persistent, or carcinogenic dangerous wastes (173-303-101 through 103), for any dangerous waste managed at the facility, which is not listed under WAC 173-303-081 or 082 and is not designated by the characteristics of WAC 173-303-090.

Clean-up levels developed under the Model Toxics Control Act (MTCA) clean-up standards of WAC 173-340 may also be applicable for removal or decontamination, if appropriate.

Containment Pad Sampling and Analysis

After triple rinsing for decontamination is completed, the concrete surface of the containment areas and related sumps will be sampled and analyzed to verify decontamination. Concrete chips will be collected to depth of 1/2 inch from the containment area surface at 35 biased and random sampling locations, as described below. Additionally, core samples will be taken from the area of the existing facility that was covered with new concrete to verify that the layer of old concrete is not contaminated. A total of 6 core samples will be taken to a depth of 1/2 inch below the surface of the original concrete to verify that the concrete was successfully decontaminated prior to being covered with new concrete.

Samples to be analyzed will pass through a number 4 sieve. Sample collection, documentation and handling will be in accordance with standard procedures described in SW-846. Sampling locations will be identified in a sampling plan prepared by Chemical Processors, Inc. or its consultants at the time of facility or unit closure. The sampling plan will be available for review by the independent engineer certifying closure.

All sumps in secondary containment areas will be selected as biased sampling locations. With planned facility modifications, there will be a total of 16 sumps within secondary containment areas: 13 within the existing tank system, 1 within the proposed load/unload pump pad, 1 within the temporary container storage area, and 1 in the loading/ unloading area. Locations of cracks or stains in the secondary containment system will also be priority locations for biased sampling. Visual observation of past repair locations and repair records maintained as part of the facility's operating log will be used to determine

selective locations for concrete sampling during closure. For the purposes of estimating closure costs, it is assumed that concrete under cracks or stains will be sampled at a total of 6 locations: 3 locations under the existing tank system containment area, 1 location under the proposed load/unload pump pad area, and 1 location each under the temporary container storage area and loading/unloading area.

Random sampling will be performed within each subdivided secondary containment area on site. The tank system, the temporary container storage system, the loading/unloading area, and the load/unload pump pad area each have one secondary containment area. The containment area within the tank system pad is substantially larger than any of the others. Three additional samples will be collected in this area. Random sample locations will be selected in accordance with procedures described in Test Methods for Evaluating Solid Waste, SW-846, U.S. Environmental Protection Agency, November 1986. Random sampling locations within 5 feet of the biased sampling locations for sumps will be excluded from random sampling.

Concrete samples will be analyzed for constituents of waste historically managed within each particular containment area, using analytical methods described in SW-846. Concrete samples will also be analyzed for constituents which may be present in wastestreams at levels too low for inclusion as a dangerous waste characteristic, but high enough to be of interest when evaluating whether the closure performance standard has been met. Because a variety of wastes are commonly handled in many of the containment areas to be sampled, the types of analyses to be conducted on samples from each containment area will be similar in many cases (see Section I3.5, Sampling and

I1.5.3 Sampling and Analysis

Revised Jan. 1990, July 1990, Dec. 1990, May 1991, July 1991, August 1991, October 1991

40 CFR 264.112(b)(4), 264.114
WAC 173-303-610(3)(a)(v), (5)

This section describes the sampling and analysis procedures to be used for closure activities at the Chemical Processors, Inc. Pier 91 Facility. Chemical Processors, Inc. will notify Ecology at least seven days prior to any background or closure performance sampling events.

Where removal of soils under waste management units (or removal of other materials) is done, then the removal will assure that the levels of dangerous waste or dangerous waste residues do not exceed:

1) Background environmental levels, for any waste managed at the facility, which either is listed under discarded chemical products or dangerous waste sources (WAC 173-303-081 or 082) or is designated by the dangerous waste characteristics of WAC 173-303-090; and

2) At least the designation limits of dangerous waste mixtures (WAC 173-303-084), or toxic, persistent, or carcinogenic dangerous wastes (173-303-101 through 103), for any dangerous waste managed at the facility, which is not listed under WAC 173-303-081 or 082 and is not designated by the characteristics of WAC 173-303-090.

Clean-up levels developed under the Model Toxics Control Act (MTCA) clean-up standards of WAC 173-340 may also be applicable for removal or decontamination, if appropriate.

TABLE I1-4. SUMMARY: PROPOSED CONCRETE SAMPLING AND ANALYSIS PLAN
Revised, July 1990, Dec. 1990, Jul. 1991, Aug. 1991, Nov. 1991

ITEM DESCRIPTION	QUANTITY	ANALYSES
Dangerous waste tank system	17 samples (inc. 13 sumps)	Volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH(1)
Central area dangerous waste tank system(2)	6 samples (inc. 4 sumps)	Volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH(1)
Proposed load/unload pump pad area	2 samples (inc. 1 sump)	Volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH(1)
Temporary container storage area	2 samples (inc. 1 sump)	Volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH(1)
Load/ unload pad	2 samples (inc. 1 sump)	Volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH(1)

SUMMARY:

Tank systems (including loading/unloading pad): 27 samples (inc. 16 sumps)

Temporary container storage area: 2 samples (including 1 sump)

Selected cracks: estimated 6 samples
TOTAL NUMBER OF CONCRETE SAMPLES: 35

1) Includes analysis for constituents which may be present in wastestreams at levels too low for inclusion as a dangerous waste characteristic, but high enough to be of interest when evaluating whether the closure performance standard has been met.
2) Core samples will be taken from this area to verify decontamination operations were successful prior to covering the area with new concrete.

decontamination, and disposed as dangerous waste at an off-site RCRA-permitted facility.

If one of the containment pad removal alternatives is chosen, a plastic cover will be placed over the exposed soil to prevent dissipation of any volatile organic compounds which may be present, and to prevent contact with rainwater or other moisture which could promote leaching of possible contaminants through the soil. Soil sampling would be timed to occur within a week after containment pad removal is complete.

If disposal of secondary containment pads is chosen as an alternative to successful decontamination and leaving the pads in place, Ecology will be notified and the closure plan and closure cost estimates will be revised accordingly.

Soil Sampling and Analysis: Background Soils

The top soil layer at the Pier 91 Facility consists of sand (fill) material up to 20 feet thick, underlain by a gravelly sand (fill) unit ranging from 2 to 15 feet thick. These layers are followed by silty sand, silt, sand, and interbedded sand and silt in layers up to 48 feet below the site. On-site background soil samples will be obtained from the northernmost corner of the Pier 91 Facility, an area determined to have experienced the least amount of activity during the history of site operations.

If background soil conditions are found to be different as a result of site investigations or cleanup activities related to RCRA Corrective Action for the Pier 91 Facility, the area chosen for background soil sampling may be changed to another area on-site. Also, any preload fill placed on-site during any future construction activities will be

sampled prior to placement to provide additional data on the characteristics of background soils on site.

Alternatively, background soil samples may be taken from an off-site location in the vicinity of the Pier 91 Facility. In this case, off-site background samples would be taken from an area considered representative of the original soils in the vicinity, e.g., from an area determined to be as unaffected as possible by development activities.

Eight background soil samples will be obtained from random locations in the area selected for background soil sampling. Each sample will be collected at a depth of 1 to 2 feet below the existing surface, using either hand augers or shallow test pits. Sample collection, documentation, and handling will be in accordance with standard procedures described in SW-846. A random sampling procedure consistent with SW-846 will be used to determine sampling locations, with equal probability of sampling at a given location. All sampling locations will be at least 5 feet apart. Whenever possible, background soil samples will be obtained from the same stratigraphic horizon where closure soil samples will be taken.

Background samples will be analyzed for Appendix IX constituents, to provide as much information as possible for future comparison of background soil characteristics and soil samples taken during unit closure. Analysis for Appendix IX criteria has been chosen instead of selected analyses for wastes historically managed on site, in an effort to prepare for any possible comparisons to be made with analytical results from soil samples taken during closure.

Background soil sampling and analysis will be completed as soon as possible after permit issuance. Therefore, costs

for background soil sampling and analysis are not discussed in this closure plan. Analytical results for background soil samples will be provided to Ecology once analyses have been completed.

In the future, if constituents of wastes handled on site differ from currently anticipated characteristics and Appendix IX analyses do not adequately characterize all constituents, additional background soil samples may also be taken if required for further statistical evaluation of results obtained during analysis of closure soil samples. Additional background samples may also be taken if the type of soils under any containment unit is found to differ from background soils sampled long before the start of closure.

Soil Sampling and Analysis: Dangerous Waste Management Areas

Once secondary containment pads and sumps have been verified as decontaminated or removed, the underlying soil will be sampled and analyzed to confirm that no residual contamination is present. Soil samples will be taken at a total of 58 locations during closure, consisting of 19 biased and 39 random sampling locations under dangerous waste management units. Random samples will be composited at a 3:1 ratio for all analyses except volatile organic compounds. For that analysis, soils from each sampling location will be tested for the presence of volatile organic compounds. Plans for analysis of soil samples taken during closure are described in greater detail later in this section.

Samples will be collected at a depth of up to 6 inches from the soil surface, through holes bored in the overlying concrete containment systems. Samples will be collected using either hand augers or shallow test pits. Sample

collection, documentation, and handling will be in accordance with standard procedures described in SW-846.

Sampling locations will be identified in a sampling plan prepared by Chemical Processors, Inc. or its consultants at the time of facility or unit closure. The sampling plan will be available for review by the independent engineer certifying closure.

Soils beneath all sumps in secondary containment areas will be sampled as biased sampling locations, since the sumps would be the most likely location for collection and longer-term residence of any contaminants. With planned facility modifications, there will be a total of 16 sumps within secondary containment areas: 13 within the existing tank system, 1 within the proposed load/unload pump pad, 1 within the temporary container storage area, and 1 in the loading/unloading area.

Locations of cracks in the secondary containment system will also be priority locations for biased sampling. Visual observation of past repair locations and repair records maintained as part of the facility's operating log will be used to determine selective locations for soil sampling during closure. For the purposes of estimating closure costs, it is assumed that soils under cracks will be sampled at a total of 3 locations: 1 location each under the tank system containment area, the temporary container storage area and the loading/unloading area.

A random sampling procedure consistent with SW-846 will be used to select random soil sampling locations, with equal probability of sampling at a given location under the secondary containment areas. Random sampling locations within 10 feet of the biased sampling locations beneath sumps will be excluded.

sampled prior to placement to provide additional data on the characteristics of background soils on site.

Alternatively, background soil samples may be taken from an off-site location in the vicinity of the Pier 91 Facility. In this case, off-site background samples would be taken from an area considered representative of the original soils in the vicinity, e.g., from an area determined to be as unaffected as possible by development activities.

Eight background soil samples will be obtained from random locations in the area selected for background soil sampling. Each sample will be collected at a depth of 1 to 2 feet below the existing surface, using either hand augers or shallow test pits. Sample collection, documentation, and handling will be in accordance with standard procedures described in SW-846. A random sampling procedure consistent with SW-846 will be used to determine sampling locations, with equal probability of sampling at a given location. All sampling locations will be at least 5 feet apart. Whenever possible, background soil samples will be obtained from the same stratigraphic horizon where closure soil samples will be taken.

Background samples will be analyzed for Appendix IX constituents, to provide as much information as possible for future comparison of background soil characteristics and soil samples taken during unit closure. Analysis for Appendix IX criteria has been chosen instead of selected analyses for wastes historically managed on site, in an effort to prepare for any possible comparisons to be made with analytical results from soil samples taken during closure.

Background soil sampling and analysis will be completed as soon as possible after permit issuance. Therefore, costs

for background soil sampling and analysis are not discussed in this closure plan. Analytical results for background soil samples will be provided to Ecology once analyses have been completed.

In the future, if constituents of wastes handled on site differ from currently anticipated characteristics and Appendix IX analyses do not adequately characterize all constituents, additional background soil samples may also be taken if required for further statistical evaluation of results obtained during analysis of closure soil samples. Additional background samples may also be taken if the type of soils under any containment unit is found to differ from background soils sampled long before the start of closure.

Soil Sampling and Analysis: Dangerous Waste Management Areas

Once secondary containment pads and sumps have been verified as decontaminated or removed, the underlying soil will be sampled and analyzed to confirm that no residual contamination is present. Soil samples will be taken at a total of 72 locations during closure, consisting of 21 biased and 51 random sampling locations under dangerous waste management units. Random samples will be composited at a 3:1 ratio for all analyses except volatile organic compounds. For that analysis, soils from each sampling location will be tested for the presence of volatile organic compounds. Plans for analysis of soil samples taken during closure are described in greater detail later in this section.

Samples will be collected at a depth of up to 6 inches from the soil surface, through holes bored in the overlying concrete containment systems. Samples will be collected using either hand augers or shallow test pits. Sample

TABLE I1-5. SUMMARY: PROPOSED SOIL SAMPLING AND ANALYSIS PLAN
Revised Jul. 1990, Dec. 1990, May 1991, July 1991, Aug. 1991, Oct. 1991, Nov. 1991

ITEM DESCRIPTION	QUANTITY	ANALYSIS
Background samples[3]	8 soil samples	Appendix IX constituents
Dangerous waste tank system	13 biased samples (sumps)	Volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]
Proposed load/unload pump pad area	1 biased sample (sump)	Volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]
Temporary container storage area	1 biased sample (sump)	Volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]
Loading/ unloading pad	1 biased sample (sump)	Volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]
Dangerous waste tank system	30 random samples composited at 3:1 ratio (10 analyses total)	Semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]
	30 random samples[2]	Volatiles
Proposed load/unload pump pad area	3 random samples composited at 3:1 ratio (1 analysis total)	Semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]
	3 random samples[2]	Volatiles

TABLE I1-5 (Continued)

ITEM DESCRIPTION	QUANTITY	ANALYSIS
Temporary container storage area	3 random samples composited at 3:1 ratio (1 analysis total)	Semi-volatiles, total metals, PCBs, sulfide, total petroleum hyrdrocarbons, and pH[1]
	3 random samples[2]	Volatiles
Loading/ unloading pad	3 random samples composited at 3:1 ratio (1 analysis total)	Semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]
	3 random samples[2]	Volatiles
Selected cracks (estimated, under tank system and container storage containment areas)	3 biased samples	Volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]

SUMMARY:

Background[3]: 8 biased soil samples

Existing tank system: 13 biased soil samples at sumps

Proposed load/unload pump pad area: 1 biased soil sample at sump

Temp. container storage area: 1 biased soil sample at sump

Load/unload pad: 1 biased soil sample at sump

Tank system:

30 random samples composited at 3:1 ratio
(10 analyses total)

TABLE I1-5 (Concluded)

ITEM DESCRIPTION	QUANTITY	ANALYSIS
Load/unload Pump pad area:		
3 random samples composited at 3:1 ratio (1 Analysis total)		
Temporary container storage area:		
3 random samples composited at 3:1 ratio (1 analysis total)		
Load/unload pad:		
3 random samples composited at 3:1 ratio (1 analysis total)		
Selected cracks: estimated 3 biased soil samples		
TOTAL (w/o background soil samples): 58 sampling locations 19 biased soil samples 39 random soil samples		

1) Includes analysis for constituents which may be present in wastestreams at levels too low for inclusion as a dangerous waste characteristic, but high enough to be of interest when evaluating whether the closure performance standard has been met.

2) Random samples analyzed for volatiles = portions of random samples collected for 3:1 compositing.

3) Background soil sampling and analysis will be completed as soon as possible after permit issuance. Costs for background soil sampling and analysis are not included in this closure plan, since sampling and analysis will not take place during the closure period.

TABLE I1-5. SUMMARY: PROPOSED SOIL SAMPLING AND ANALYSIS PLAN
Revised Jul. 1990, Dec. 1990, May 1991, July 1991, Aug. 1991, Oct. 1991

ITEM DESCRIPTION	QUANTITY	ANALYSIS
Background samples[3]	8 soil samples	Appendix IX constituents
Existing dangerous waste tank system	13 biased samples (sumps)	Volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]
Proposed dangerous waste tank system	2 biased samples (sumps)	Volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]
Temporary container storage area	1 biased sample (sump)	Volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]
Loading/ unloading pad	1 biased sample (sump)	Volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]
Existing dangerous waste tank system	30 random samples composited at 3:1 ratio (10 analyses total)	Semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]
	30 random samples[2]	Volatiles
Proposed dangerous waste tank system	15 random samples composited at 3:1 ratio (5 analyses total)	Semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]
	15 random samples[2]	Volatiles

Hazardous and Solid Waste Amendments of 1984. It is expected that any corrective action required will be completed prior to final closure of the facility.

I3.1 Regulatory Requirements

Revised, Jan. 1990, July 1990, Sept. 1990, Dec. 1990, March 1991, May 1991, July 1991, Aug. 1991, Nov. 1991

The closure cost estimates, as required by 40 CFR 264.142(a)(1) and WAC 620(3)(a)(i), must reflect an estimate of the cost of facility closure at a point when the extent and manner of its operations would make closure the most expensive. This "maximum waste inventory" includes all of the proposed units identified in Table I1-1, Waste Storage and Treatment Units. The total estimated cost for closure of the facility for the maximum waste inventory is $469,256. Table I3-1, Cost Estimates Reflecting Closure at Maximum Waste Inventory, provides a breakdown of this estimate. The costs are broken down further in Sections I3.3 through I3.5, and in Appendix I-2.

These costs are based on the current value of the dollar as of the most recent revision of this Closure Plan. Background cost data to support these estimates are provided in Appendix I-1, Unit Costs and Assumptions and Appendix I-2, Closure Cost Calculations for Maximum Waste Inventory.

During the operating life of the facility, Chemical Processors, Inc. will adjust the closure cost estimates annually to take inflation into account. The adjustments will be made by recalculating closure costs in current dollars or by using an inflation factor as specified in 40 CFR 264.142(b)(i) and (b)(ii) and WAC 173-303-620(3)(c).

TABLE I3-1. COST ESTIMATES REFLECTING CLOSURE AT MAXIMUM WASTE INVENTORY

ITEM DESCRIPTION	COST (1994 $$)
Inventory elimination (tanks)	$211,572
Additional inventory elimination contingency costs [(a)]	$37,806
Tank decontamination incl. pump/piping decontamination	$60,188
Process equipment decontamination	$157
Secondary containment structures decontamination	$25,107
Heavy equipment decontamination	$124
Rinsate treatment and disposal [(a)]	$51,704
Sampling/analysis (concrete and soils)	$55,516
Personal protective equipment	$1,400
Engineering certification	$16,428
SUBTOTAL	$460,002
Contingency (10%)	$46,000
MAXIMUM WASTE INVENTORY CLOSURE COST ESTIMATE	$506,002

(a) Contingency costs are added to recognize the possibility of on-site treatment capacity being unavailable at the time of closure

The inflation adjustment will be made within 60 days prior to the anniversary date of the establishment of the financial assurance mechanism. The closure cost estimates also will be revised if a change in the Closure Plan increases the cost of closing the facility. The cost revisions will be made within 30 days after agency approval of the change.

The financial assurance mechanism will be updated on an annual basis or as needed to reflect the current status of the facility in terms of the construction and closure of waste management units.

I3.2 Unit Costs for Closure Activities

Revised, January 1990

The unit costs associated with closure of the Pier 91 Facility are based on the following:

- The unit costs for all closure activities are based on the cost of hiring a third party to close the facility. A third party is someone other than the parent or subsidiary of the owner or operator. However, it is intended that trained site personnel will be used to conduct closure activities to the greatest extent possible in order to maintain continuity of facility operation.

- Cost estimates using third party costs include those for labor, equipment, and engineering certification. Specific examples of third party contractors which may be used for closure include contractors for off-site treatment and disposal of dangerous wastes, facility and equipment decontamination, tank and equipment removal, sampling and analysis of tanks, concrete, and

soil, and monitoring of all closure activities by an independent registered professional engineer. Examples of qualifications for third party contractors include hazardous waste site workers trained in dangerous waste cleanup in compliance with OSHA standards (29 CFR Part 1910.120(e)) and job-specific training for their particular task, and outside consultants (including engineers) with demonstrated experience in closure of dangerous waste facilities and cleanup of dangerous waste sites.

- Unit costs were obtained, where possible, from actual operating costs and experience. Other sources used include EPA's Final Report Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subparts G and H), November, 1986, and contractor estimates.

- Treatment costs are rates presently estimated for existing waste management units.

Specific information regarding the assumptions and procedures used to develop unit costs is provided in Appendix I-1. The unit costs are listed in a table located in Appendix I-1.

I3.3 Inventory Elimination Costs

Revised, January 1990, July 1990, December 1990, March 1991

The costs for treating, transporting, and off-site disposal of remaining inventory after wastes are no longer accepted at the facility are included in this section. Inventory elimination cost estimates are based on the maximum waste inventory, and are summarized in Table I3-2. Calculations and unit costs for inventory elimination are presented in

TABLE I3-2. INVENTORY ELIMINATION COSTS

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
A1. Oil and coolant emulsions	260,335 gal		
phenolic treatment	260,335 gal	$0.08 /gal	$20,827
demulsification	260,335 gal	$0.04 /gal	$10,413
heat treatment	260,335 gal	$0.04 /gal	$10,413
Cr+6 reduction	13,017 gal	$0.01 /gal	$130
to DW fuels:	260,335 gal x 10% = 26,034 gal		
loading	26,034 gal	5,000 gal/hr $30 /man hr	$156
transport	5 trucks	$250 /truck	$1,250
rail transport	26,034 gal	$0.30 /gal	$7,810
disposal	26,034 gal	$0.22 /gal	$5,727
wastewater treatment:	260,335 gal x 90% = 234,302 gal		
pH adjust	234,302 gal	$0.07 /gal	$16,401
discharge:	234,302 gal x 89% = 208,529 gal		
sludge treatment:	234,302 gal x 11% = 25,773 gal		
wastewater treatment:	25,773 gal x 40% = 10,309 gal		
pH adjust/discharge	10,309 gal	$0.07 /gal	$722
stabilization:	25,773 gal x 60% = 15,464 gal		
loading	15,464 gal	5,000 gal/hr $30 /man hr	$93
	15,464 gal x 10 lb/gal x ton/2,000 lb = 77 tons		
transport	77 tons	$250 /22 tons	$875
stabilize/disposal	77 tons	$350 /ton	$26,950
SUBTOTAL =			$101,767
A2. Phenolic wastewater	14,810 gal		
phenolic treatment	14,810 gal	$0.08 /gal	$1,185
heat treatment	14,810 gal	$0.04 /gal	$592
pH adjust/discharge	14,810 gal	$0.07 /gal	$1,037
aqueous treatment:	14,810 gal x 40% = 5,924 gal		
pH adjust	5,924 gal	$0.07 /gal	$415
sludge stabilization:	14,810 gal x 60% = 8,886 gal		

TABLE I3-2. INVENTORY ELIMINATION COSTS

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
loading	8,886 gal	5,000 gal/hr $30 /man hr	$53
	8,886 gal x 10 lb/gal x ton/2,000 lb = 44 tons		
transport	44 tons	$250 /22 tons	$500
stabilize/disposal	44 tons	$350 /ton	$15,400
SUBTOTAL =			$19,182
A3. Industrial Wastewaters	385,996 gal		
pH adjustment	385,996 gal	$0.07 /gal	$27,020
discharge:	385,996 gal x 89% = 208,529 gal		
on-site treatment:	385,996 gal x 11% = 42,460 gal		
wastewater treatment:	42,460 gal x 40% = 16,984 gal		
pH adjust/discharge	16,984 gal	$0.07 /gal	$1,189
stabilization:	42,460 gal x 60% = 25,476 gal		
loading	25,476 gal	5,000 gal/hr $30 /man hr	$153
	25,476 gal x 10 lb/gal x ton/2,000 lb = 127 tons		
transport	127 tons	$250 /22 tons	$1,443
stabilize/disposal	127 tons	$350 /ton	$44,450
SUBTOTAL =			$74,255
A4. Industrial waste sludge	14,810 gal		
wastewater treatment:	14,810 gal x 40% = 5,924 gal		
pH adjust/discharge	5,924 gal	$0.07 /gal	$415
stabilization:	14,810 gal x 60% = 8,886 gal		
loading	8,886 gal	5,000 gal/hr $30 /man hr	$53
	8,886 gal x 10 lb/gal x ton/2,000 lb = 44 tons		
transport	44 tons	$250 /22 tons	$500
stabilize/disposal	44 tons	$350 /ton	$15,400
SUBTOTAL =			$16,368
GRAND TOTAL MAXIMUM WASTE INVENTORY ELIMINATION COST =			$211,572

Appendix I-2, Closure Cost Calculations for Maximum Waste Inventory.

Wastes which are expected to be commonly received at the facility and which will require treatment and/or disposal include:

- Oil and coolant emulsions
- Industrial wastewaters including alkalis
- Industrial waste sludges

The assumptions involved in determining the unit costs for the elimination of these wastes are discussed below along with other identified means for determining unit costs.

It is assumed that all wastes will be treated on site, and treatment costs will reflect current treatment costs using third party labor. Residue from centrifuge operations will be landfilled at an off-site RCRA-permitted facility or sent to an off-site RCRA-permitted burner of dangerous waste fuels. Additional contingency costs presented in Table I3-1 are included to recognize the possibility of on-site treatment capacity being unavailable at closure. Detailed calculations used to arrive at the contingency costs are included in Appendix I-2, Closure Cost Calculations for Maximum Waste Inventory.

Unit transportation costs used for estimating inventory elimination costs are based on contractor estimates for transporting bulk sludges and liquids to an off-site RCRA-permitted disposal facility located approximately 400 miles from the Pier 91 Facility.

Unit disposal costs for off-site landfilling and for dangerous waste fuel burning were obtained from facility

operating experience and supplemented with information from the EPA's Final Report Guidance Manual: Cost Estimates for Closure and Post Closure Costs (Subparts G and H) Volume III - Unit Costs, November 1986.

I3.4 Facility Decontamination Costs

Revised, Jan. 1990, July 1990, Sept. 1990, Dec. 1990, July 1991

The closure costs for decontamination of facility equipment and waste management units are included in this section. Specifically, cost estimates are included for decontamination of the following:

- tanks/treatment units
- pumps and piping
- secondary containment structures
- heavy equipment used during closure

Cost estimates for rinsate decontamination have also been included in this section.

Tanks/treatment units, secondary containment structures, and heavy equipment will be decontaminated by triple-rinsing with a high-pressure washer. For cost estimating purposes, it is assumed that pumps and piping will be decontaminated with a detergent triple-rinse. Tanks and equipment will be salvaged to the extent possible. However, salvage value has not been incorporated into the closure cost estimate. Costs for facility decontamination are summarized in Table I3-3, Facility Decontamination Costs. Additional contingency costs are also included to recognize the possibility of on-site treatment capacity being unavailable at closure. Calculations for cost estimates are presented in Appendix I-2, Closure Cost Calculations for Maximum Waste Inventory.

TABLE 13-3. FACILITY DECONTAMINATION COSTS

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
Tank decontamination	675,950 gal	$0.087 /gal	$58,808
Centrifuge decontamination:			
decontamination	85 ft^2	$1.09 /$ft^2$	$93
labor	85 ft^3	40 ft^2/hr	$64
		$30 /man-hr	
Pumps and piping decontamination:	12 pumps	$115 /pump	$1,380
Secondary containment structures decontamination:			
concrete washing	13,645 ft^2	$1.09 ft^2	$14,873
labor	13,645 ft^2	40 ft^2/hr	$10,234
		$30 /man-hr	
Heavy equipment:	2 forklifts	$32 /forklift	$124
labor		$30 /man-hr	
Rinsate treatment and disposal:			
Wastewater:	158,294 gal for on-site treatment		
pH adjust	158,294 gal	$0.07 /gal	$11,081
to discharge:	158,294 gal x 89% = 140,882 gal		
water treatment:	158,294 gal x 11% = 17,412 gal		
wastewater:	17,412 gal x 40% = 6,965 gal		
pH adjust/discharge	6,965 gal	$0.07 /gal	$488
stabilization:	17,412 gal x 60% = 10,447 gal		
loading	10,447 gal	5,000 gal/hr	$63
		$30 /man-hr	
	10,447 gal x 10 lb/gal x ton/2,000 lb = 52 tons		
transport	52 tons	$250 /22 tons	$591
stabilize/disposal	52 tons	$350 /ton	$18,200
SUBTOTAL =			$30,423

TABLE 13-3. FACILITY DECONTAMINATION COSTS

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
Additional contingency costs for off-site wastewater treatment:			
	158,294 gal		
loading	158,294 gal	5,000 gal/hr $30 /man-hr	$950
transport	32 trucks	$250 /truck	$8,000
SUBTOTAL =			$8,950
Off-site treatment:	8,856 gal		
loading	8,856 gal	5,000 gal/hr $30 /man-hr	$53
transport	2 trucks	$250 /truck	$500
off-site treatment	8,856 gal	$1.33 /gal	$11,778
SUBTOTAL =			$12,331
TOTAL RINSATE TREATMENT AND DISPOSAL COST =			$51,704
TOTAL FACILITY DECONTAMINATION COSTS:			$137,280

I3.5 Sampling and Analytical Costs

Revised, January 1990, July 1990, December 1990, July 1991, August 1991, October 1991, November 1991

Items which will require sampling and analysis include secondary containment areas (concrete), background soils, and soils under dangerous waste management units. Costs for sample collection and analysis are summarized in Table I3-4. Detailed cost estimates are included in Appendix I2, Closure Cost Calculations for Maximum Waste Inventory. Plans for sample collection and analysis are summarized below, and are described in detail in Section I1.5.3 (Sampling and Analysis).

Concrete chip samples from secondary containment areas will be taken from 35 biased and random sampling locations. Concrete chip samples will be collected after triple-rinsing for decontamination is complete. Additionally, core samples will be taken from the area of the existing facility that was covered with new concrete to verify that the layer of old concrete is not contaminated. A total of 6 core samples will be taken to verify that the concrete was successfully decontaminated prior to being covered with new concrete. The samples will be analyzed for constituents of wastes historically managed within each particular containment area, using analytical methods described in SW-846. Analyses listed in Table I3-4 (Sampling and Analytical Costs) include constituents which may be present in wastestreams at levels too low for inclusion as a dangerous waste characteristic, but high enough to be of interest when evaluating whether the closure performance standard has been met.

Background soil samples will be obtained from the northernmost corner of Pier 91 Facility. Alternatively,

TABLE I3-4. SAMPLING AND ANALYTICAL COSTS

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
Concrete samples - collection	35 samples	$26 /sample	$910
Concrete samples - analysis			
Existing dangerous waste tank system	17 samples (inc. 13 sump)	$714 /sample for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$12,138
Central area of dangerous waste tank system	6 samples	$714 /sample for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$4,284
Load/unload pump area	2 samples (inc. 2 sumps)	$714 /sample for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$1,428
Temporary container storage area	2 samples (inc. 1 sump)	$714 /sample for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$1,428

TABLE I3-4. SAMPLING AND ANALYTICAL COSTS

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
Load/unload pad	2 samples (inc. 1 sump)	$714 /sample for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$1,428
Selected cracks or stains (est.)	6 samples	$714 /sample for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$4,284
TOTAL, CONCRETE SAMPLE ANALYSIS			$24,990
Soil samples - collection			
containment area soil samples	60 samples	$26 /sample	$1,560
Soil samples - analysis			
Dangerous waste tank system	13 samples (sumps)	$699 /sample for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$9,087
Load/unload pump pad	1 biased sample	$699 /sample for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$699

TABLE I3-4. SAMPLING AND ANALYTICAL COSTS

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
Temporary container storage area	1 biased sample (sump)	$699 /sample for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$699
Load/unload pad	1 biased sample (sump)	$699 /sample for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$699
Dangerous waste tank system - 30 random samples composited at 3:1 ratio (10 analyses total)	10 samples	$534 /sample for semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$5,340
	30 random[2] samples	$165 /sample for volatiles	$4,950
Load/unload pump pad - 3 random samples composited at 3:1 ratio (1 analysis total)	1 sample	$534 /sample for semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$534
	3 random[2] samples	$165 /sample for volatiles	$495

TABLE I3-4. SAMPLING AND ANALYTICAL COSTS

ITEM DESCRIPTION	QUANTITY	UNIT COST	TOTAL COST
Temporary container storage area - 3 random samples composited at 3:1 ratio (1 analysis total)	1 sample	$534 /sample for semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$534
	3 random[2] samples	$165 /sample for volatiles	$495
Load/unload pad - 3 random samples composited at 3:1 ratio (1 analysis total)	1 sample	$534 /sample for semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$534
	3 random[2] samples	$165 /sample for volatiles	$495
Selected cracks and stains (estimated, under tank systems and container storage containment areas)	5 biased samples	$699 /sample for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH[1]	$3,495
TOTAL, SOIL SAMPLE ANALYSIS			$28,056
TOTAL SAMPLING & ANALYSIS COSTS			$55,516

1) Includes analysis for constituents which may be present in wastestreams at levels too low for inclusion as a dangerous waste characteristic, but high enough to be of interest when evaluating whether the closure performance standard has been met.

2) Random samples analyzed for volatiles = portions of random samples collected for 3:1 compositing.

3) Core samples from the area covered with new concrete prior to verification of successful decontamination.

background soil samples may be obtained from another area on site or from an off-site location near the Pier 91 Facility (see background soil sampling discussion in Section I1.5.3, Sampling and Analysis). Eight background soil samples will be obtained from random locations and analyzed for Appendix IX constituents, using methods consistent with SW-846. All sampling locations will be at least 5 feet apart. Background soil sampling and analysis will be completed as soon as possible after permit issuance. Therefore, costs for background soil sampling and analysis are not discussed in this closure plan.

Samples of soil underlying secondary containment pads and sumps will be collected once the pads and sumps have been verified as decontaminated or removed. Soil samples will be taken at a total of 58 locations during closure: 19 biased and 39 random sampling locations. All soil samples from biased sample locations and all of the composited random soil samples will be analyzed for constituents of waste historically managed on site, using analytical methods described in SW-846. Random samples will be composited at a 3:1 ratio for all analyses except volatile organic compounds, resulting in a total of 13 composited random samples. Soils from each of the 39 random sampling location will be tested for the presence of volatile organic compounds.

I4.0 POST-CLOSURE COST ESTIMATE REQUIREMENTS

40 CFR 270.14(b)(16), 264.144, 264.197(c)(3)
WAC 173-303-806(4)(xvi), 620(5)

Chemical Processors, Inc. has not operated dangerous waste disposal units at the Pier 91 Facility. The tank systems at the facility include adequate secondary containment, and

thus will not be subject to the contingent post-closure care cost estimate requirements of 40 CFR 264.197(c)(3) and (5). No dangerous waste residues or contaminated materials will be left in place upon final closure of the facility. Therefore, a post-closure care cost estimate is not provided.

I5.0 NOTICE IN DEED REQUIREMENTS AND SURVEY PLAT REQUIREMENTS

40 CFR 270.14(b)(14), 264.116, 264.117(c), 264.119
WAC 173-303-806(4)(a)(xiv), 610(7)(d), (8), (10), (11)

Chemical Processors, Inc. has not operated dangerous waste disposal units at the Pier 91 Facility. The tank systems at the facility include adequate secondary containment, and thus will not be subject to the contingent post-closure care requirements of 40 CFR 264.197(c)(2) and (c)(5).

No regulated units containing dangerous wastes will remain at the site after closure; therefore, a notice in deed regarding restrictions on the use of land used to manage dangerous wastes will not be necessary. Similarly, a survey plat indicating the location of landfill cells or other dangerous waste disposal units remaining on site will not be required.

I6.0 FINANCIAL ASSURANCE MECHANISM

40 CFR 270.14(b)(15) and (16), 264.143, 264.145, 264.197(c)(4) and (c)(5)
WAC 173-303-806(4)(a)(xv) and (xvi), 620(4) and (6)

A trust agreement to assure that funds are available for closure of the facility has been provided by Chemical Processors, Inc. A copy of the document is included as Appendix I-3. The trust agreement was amended in 1986 to indicate the change of administering agency [from U.S. EPA to the Washington Department of Ecology (Ecology)] and to revise the trust agreement to conform to the regulations of Ecology in other respects.

Chemical Processors, Inc. has not operated dangerous waste disposal units at the Pier 91 Facility. The tank systems at the facility include adequate secondary containment, and will not be subject to the contingent post-closure care cost estimate requirements of 40 CFR 264.197(c)(4) and (5). No dangerous waste residues or contaminated materials will be left in place upon final closure of the facility; therefore, a post-closure care cost estimate is not provided.

I7.0 LIABILITY REQUIREMENTS

40 CFR 270.14(b)(17), 264.147
WAC 173-303-806(4)(a)(xvii), 620(8), (9)

Chemical Processors, Inc. has provided demonstration of financial responsibility for bodily injury and property damage for sudden accidental occurrences arising from operations of its facilities. A copy of the company's certificate of liability insurance is included as Appendix I-4.

background soil samples may be obtained from another area on site or from an off-site location near the Pier 91 Facility (see background soil sampling discussion in Section I1.5.3, Sampling and Analysis). Eight background soil samples will be obtained from random locations and analyzed for Appendix IX constituents, using methods consistent with SW-846. All sampling locations will be at least 5 feet apart. Background soil sampling and analysis will be completed as soon as possible after permit issuance. Therefore, costs for background soil sampling and analysis are not discussed in this closure plan.

Samples of soil underlying secondary containment pads and sumps will be collected once the pads and sumps have been verified as decontaminated or removed. Soil samples will be taken at a total of 72 locations during closure: 21 biased and 51 random sampling locations. All soil samples from biased sample locations and all of the composited random soil samples will be analyzed for constituents of waste historically managed on site, using analytical methods described in SW-846. Random samples will be composited at a 3:1 ratio for all analyses except volatile organic compounds, resulting in a total of 17 composited random samples. Soils from each of the 51 random sampling location will be tested for the presence of volatile organic compounds.

I4.0 POST-CLOSURE COST ESTIMATE REQUIREMENTS

40 CFR 270.14(b)(16), 264.144, 264.197(c)(3)
WAC 173-303-806(4)(xvi), 620(5)

Chemical Processors, Inc. has not operated dangerous waste disposal units at the Pier 91 Facility. The tank systems at the facility include adequate secondary containment, and

Appendix I

APPENDIX I-1

UNIT COSTS AND ASSUMPTIONS

APPENDIX I-1
UNIT COSTS AND ASSUMPTIONS

The assumptions and procedures used to develop unit costs for closure cost estimates are as follows:

1. Cost estimates include all activities associated with closure of the dangerous waste management units and the general facility. Costs associated with treatment of dangerous waste inventories through the individual waste management units also are included as part of the cost estimate.

2. Sequential closure of the hazardous waste management units and operations will be followed for closing the entire facility. The wastes will be processed through the individual waste management units in a logical and orderly fashion.

3. The processing of the hazardous wastes within the facility and individual waste management units will be performed using the same procedures as the facility would normally use to process the wastes if the facility were not being closed.

4. Although costs reflect the use of third parties to close the facility, it is intended that closure will be performed by trained Chemical Processors' technicians familiar with the various processing units.

5. The costs for removal of non-RCRA-regulated units, equipment, and structures within the dangerous waste tank system is included in this document. The cost for removal of product tanks 2501-2502 and biological treatment tank

2603 (non-RCRA units) are also included, though they are outside the dangerous waste tank system.

6. Supplies and equipment will be salvaged to the extent possible. However, salvage value has not been incorporated into the closure cost estimate.

7. Chemical Processors' on-site equipment will be used where possible to close the facility. Outside contractor's equipment will be used as necessary.

8. Costs for decontaminating sampling equipment between samples is considered to be negligible.

9. Estimated man-hours needed to perform closure activities and unit cost estimates are based on previous Chemical Processors' experience and best estimates, and on the EPA guidance document: Final Report Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subparts G and H) Volume III - Unit Costs. Costs obtained from the Guidance Manual were adjusted to 1988 dollars by an inflation factor (1.05).

10. Unit costs for the treatment/disposal of wastes (inventory elimination), tank removal and for pump and piping decontamination vary, so are not specified in Table I-1a, Unit Costs for Closure Activities. These costs are described in Appendix I-2.

TABLE I-1a. UNIT COSTS FOR CLOSURE ACTIVITIES Sheet 1 of 1

ITEM DESCRIPTION	1988 UNIT COST	SOURCE
Operator labor	$24/hr.	Guidance Manual(1)
Field Technician	$22/hr.	Guidance Manual(1)
Professional Engineer	$63/hr.	Guidance Manual(1)
Welder	$25/hr.	Facility operating experience
Tank decontamination	$0.075/gal of tank	Contractor estimate
High-pressure washing	$0.92/ft.^{2}	Guidance Manual(1)
Tank sample collection	$25/sample	Facility operating experience
Concrete sample collection	$22/sample	Facility operating experience
Soil sample collection	$22/sample	Guidance Manual(1)
Heavy equipment decontamination		
forklift	$27/forklift	Guidance Manual(1)
front-end loader	$83/loader	Guidance Manual(1)
backhoe	$83/backhoe	Guidance Manual(1)
Heavy equipment mobilization/ demobilization	$275/equipment	Guidance Manual(1)

(1) Final Report Guidance Manual: Cost Estimates for Closure and Post-Closure Plans (Subparts G and H) Volume III - Unit Costs, November, 1986. Costs adjusted to 1988 dollars by an inflation factor (1.05).

APPENDIX I-2

CLOSURE COST CALCULATIONS FOR MAXIMUM WASTE INVENTORY
Revised, January 1990, July 1990, September 1990, December 1990,
July 1991, August 1991, November 1991

APPENDIX I-2

CLOSURE COST CALCULATIONS FOR MAXIMUM WASTE INVENTORY

A. Inventory Elimination Costs for Maximum Waste Inventory

The following cost estimates are summarized in Table I3-2, Inventory Elimination Costs. Wastes are grouped by waste stream. Treatment costs are unit costs per gallon of waste.

A1. Oil and Coolant Emulsions

Quantity: Tanks 2703, 2706 = 98,970 gal; Tanks 2708-2710 = 161,365 gal. Total = 260,335 gallons.

Total volume will be treated for phenolics and demulsified. Assume five percent (16,966 gal.) of total volume will contain Cr^{+6} and be treated accordingly.

Phenolic treatment = 260,335 gal. x $0.08/gal.	= $ 20,827
Demulsification = 260,335 gal. x $0.04/gal.	= 10,413
Heat treatment = 260,335 gal. x $0.04/gal.	= 10,413
Cr^{+6} reduction = 13,017 gal. x $0.01/gal.	= 130
	= $ 41,783

After the above treatments, 90% (234,301 gal.) of the total original volume will be treated on-site through the industrial wastewater treatment process, and 10% (26,034 gal.) will be disposed off site as dangerous waste fuels. The DW fuels transportation costs include loading.

Off-site DW fuel disposal of 26,034 gal.

- intra-state transport = $0.05/gal.
- rail transport to burner = 0.27/gal.
- disposal, DW fuel = 0.13/gal.

Total = 26,034 gal. x $0.45/gal. = $ 11,715

On-site wastewater treatment of 234,301 gal.

- neutralize/pH adjust = 234,301 gal. x $0.07/gal. = $ 16,401
- 89% discharge to sewer = 208,528 gal.
- 11% to industrial waste sludge treatment = 25,773 gal.

On-site industrial waste sludge treatment of 25,773 gal.

- 40% return to wastewater treatment = 10,309 gal.
  neutralize/pH adjust = 10,309 gal. x $0.07/gal. = $ 722

- 60% remains for treatment = 15,464 gal.
  50% to off-site stabil./disposal (landfill) = 7,732 gal.
  - loading = $ 2/ton or $0.01/gal.
  - transport = 40/ton or 0.20/gal.
  - state tax = 20/ton or 0.10/gal.
  - oil tax = 10/ton or 0.05/gal.
  - stabil./disposal = 225/ton or 1.13/gal.

  Total = 7,732 gal. x $297/ton or $1.49/gal. = $ 11,521

  50% to centrifuge = 7,732 gal.
  - centrifuge = 7,732 x $0.30/gal. = $ 2,320

    50% return to DW fuels = 3,866 gal.
    3,866 gal. x $0.45/gal. = $ 1,740

    50% return to wastewater treat. = 3,866 gal.
    neutralize/pH adjust = 3,866 gal.
    x $0.07/gal. = $ 271

$ 44,690

Total cost for treatment of 260,335 gallons of Phenolic Oil and Coolant Emulsions. = $ 86,473

A2. Phenolic Wastewater

Quantity: Tank 2313 = 14,810 gal. Total = 14,810 gallons.

Total volume will be treated for phenolics, pH adjusted and flocculated/precipitated. Assume only 1% of total volume will contain Cr^{+6}, this treatment cost is negligible.

Phenolic treatment = 14,810 gal. x $0.08/gal.	= $	1,185
Heat treatment 14,810 gal. x $0.04/gal.	=	593
Neutralize/pH adjust = 14,810 gal. x $0.07/gal.	=	1,037
	= $	2,815

After the above treatments, 89% (13,181 gal.) of the total original volume can be discharged to the sewer, the remaining 11% (1,629 gal.) will be treated on site through the industrial waste sludge treatment process.

On-site indust. waste sludge treatment of 1,629 gallons

- 40% return to wastewater treatment = 652 gal.
  neutralize/pH adjust = 652 gal. x $0.07/gal. = $ 46

- 60% remains for treatment = 977 gal.
  50% to off-site stabil./disposal (landfill) = 489 gal.
  - loading = $0.01/gal.
  - transport = 0.20/gal.
  - state tax = 0.10/gal.
  - oil tax = 0.05/gal.
  - stabil./disposal = 1.13/gal.

  Total = 489 gal. x $1.49/gal. = $ 729

50% to centrifuge = 489 gal.
- centrifuge = 489 gal. x $0.30/gal. = $ 147
50% return to DW fuels = 245 gal.
- intra-state xport = $0.05/gal.
- rail xport to burner = 0.27/gal.
- disposal, DW fuel = 0.13/gal.
Total = 245 gal. x $0.45/gal. = $ 110
50% return to wastewater treat. = 245 gal.
- neutralize/pH adjust = 245 gal.
x $0.07/gal. = $ 17

= $ 1,049

Total cost for treatment of 14,810 gallons of Phenolic Wastewater = $ 3,864

A3. Industrial Wastewater

Quantity: Tanks 2307-2309 = 44,430 gal; Tanks 2701-2702 = 146,040 gal; Tanks 2704-2705 = 146,040 gal; Tank 2707 = 49,486 gal. Total = 385,996 gallons.

Total volume will be pH adjusted and flocculated/precipitated. Assume no Cr^{+6} treatment is necessary.

pH adjust & flocc/precip. = 385,996 gal. x $0.07 gal. = $ 27,020

After the above treatment, 89% (343,536 gal.) of the total original volume can be discharged to the sewer, the remaining 11% (42,460 gal.) will be treated on site through the industrial waste sludge treatment process.

On-site indust. waste sludge treat. of 42,460 gallons.

- 40% return to wastewater treat. = 16,984 gal.
neutralize/pH adjust = 16,984 gal. x $0.07/gal. = $ 1,189
- 60% remains for treatment = 25,476 gal.
50% to off-site stabil./disposal (landfill) = 12,738 gal.
- loading = $0.01/gal.
- transport = 0.20/gal.
- state tax = 0.10/gal.
- oil tax = 0.05/gal.
- stabil./disposal = 1.13/gal.
Total = 12,738 gal. x $1.49/gal. = $ 18,979

50% to centrifuge = 12,738 gal.
- centrifuge = 12,738 gal. x $0.30/gal. = $ 3,821
50% return to DW fuels = 6,369 gal.
- intra-state xport = $0.05/gal.
- rail xport to burner = 0.27/gal.
- disposal, DW fuel = 0.13/gal.
Total = 6,369 gal. x $0.45/gal. = $ 2,866

50% return to wastewater treat. = 6,369 gal.
- neutralize/pH adjust = 6,369 gal.
x $0.07/gal. = $ 446

Total cost for treatment of 385,996 gallons of Industrial Wastewater = $ 54,321

A4. Industrial Waste Sludge

Quantity: Tanks 2310 = 14,810 gal.

Total volume will be settled and decanted. Assume 40% (5,924 gal.) of supernatant to return to the industrial wastewater treatment process and 60% (8,886 gal.) sludge to the centrifuge. Assume 50% (4,775 gal.) of the sludge will not be centrifuged and sent to an off-site RCRA-permitted disposal facility. The remaining 50% (4,776 gal.) of the sludge will be centrifuged where 50% (2,388 gal.) will be supernatant and returned to the industrial wastewater treatment process, and 50% (2,388 gal.) will be disposed off site as dangerous waste fuel.

- 40% return to wastewater treatment = 5,924 gal.
neutralize/pH adjust = 5,924 gal. x $0.07 gal. = $ 415

- 60% remains for treatment = 8,886 gal.
50% to off-site stabil./disposal (landfill) = 4,443 gal.
- loading = $0.01/gal.
- transport = 0.02/gal.
- state tax = 0.10/gal.
- oil tax = 0.05/gal.
- stabil./disposal = 1.13/gal.
Total = 4,443 gal. x $1.49/gal. = $ 6,620

50% to centrifuge = 4,443
- centrifuge = 4,443 x $0.30/gal. = $ 1,333
50% return to DW fuels = 2,221 gal.
- intra-state xport = $0.05/gal.
- rail xport to burner = 0.27/gal.
- disposal, DW fuel = 0.13/gal.
Total = 2,221 gal. x $0.45/gal. = $ 1,000
50% return to wastewater treat. = 2,222 gal.
neutralize/pH adjust = 2,222 gal.
x $0.07/gal. = $ 156

Total of 8,146 gallons (5,924 and 2,222 gals.) of supernatant is returned to the industrial wastewater treatment process. This will produce approximately 408 gallons of sludge at an average treatment cost of $1.56/gal.

treatment = 408 gal. x $1.56/gal. = $ 636

Total cost for treatment of 14,810 gallons of Industrial Waste Sludges $ 10,160

TOTAL MAXIMUM INVENTORY ELIMINATION COST = $154,818

B. Additional Inventory Elimination Contingency Costs

The following costs are included as a contingency in the event that on-site treatment capacity is unavailable at the time of final closure. These contingency cost estimates reflect the addition of loading plus transportation costs to other regional facilities based on the scenarios presented in Section A above. Wastestreams which do not receive on-site treatment in the inventory elimination scenario in Section A do not have additional costs presented here.

BA1. Oil and coolant emulsions: 260,335 gal
To Kent Facility:

loading	$24/5,000 gal	$ 1,250
transport	$300/5,000 gal	15,620
		$ 16,870

BA2. Phenolic Wastewater: 14,810 gal
To Kent Facility:

loading	$24/5,000 gal	$ 71
transport	$300/5,000 gal	889
		$ 960

BA3. Industrial wastewater: 385,990 gal
To Kent Facility:

loading	$24/5,000 gal	$ 1,853
transport	$300/5,000 gal	23,100
		$ 24,953

BA4. Industrial waste sludge: 14,810 gal
To Kent Facility:

loading	$24/5,000 gal	$ 71
transport	$300/5,000 gal	889
		$ 960

TOTAL ADDITIONAL CONTINGENCY COSTS FOR INVENTORY ELIMINATION ASSUMING NO ON-SITE TREATMENT: $ 43,697

C. Facility Decontamination Costs

The following cost estimates are summarized in Table I3-3, Facility Decontamination Costs.

C1. Tank Decontamination

Unit Cost = $0.075/gallon (contractor estimate)

Tanks	2307-2310 14,810 gals. ea. x $0.075 x 4 tanks	= $ 4,443
Tank	2313 14,810 gal. x $0.075	= $ 1,111
Tanks	2701, 2703, 2705, 2706-2708 49,485 gals. ea. x $0.075 x 6 tanks	= $22,268
Tanks	2702, 2704 96,555 gals. ea. x $0.075 x 2 tanks	= $14,483
Tanks	2709-2710 55,940 gals. ea. x $0.075 x 2 tanks	= $ 8,391

TOTAL TANK DECONTAMINATION COST = $50,696

C2. Process Equipment Decontamination

Centrifuge: Unit cost = $0.92/$ft^2$ at 40 ft^2/hr (Guidance Manual)

High-pressure washing: 85 ft^2 x $0.92/$ft^2$ = $ 78

Labor: 85 ft^2 / (40 ft^2/hr.) = 2 man-hrs.
x $24/hr. = $ 48

C3. Pumps and Piping

Assume 12 pumps on site at closure. From Guidance Manual, clean-up time is eight hours for first pump, another four hours for each additional pump (52 hours total). 50 gallons of cleaning fluid and rinse generated from each pump (600 gallons total). Unit cost for decontaminating pumps and connecting piping reflects labor plus disposition of cleaning fluid at an authorized off-site facility. Unit cost is $97/pump and connected piping.

12 pumps x $97/pump = $1,164

C4. Secondary Containment Structure Decontamination

Concrete pads and sumps will be high-pressure washed.
Unit costs from Guidance Manual.

Unit cost = $0.92/ft.^{2} at 40 ft.^{2}/hr.

Tank System: surface area = 11,929 ft.^{2}

- high pressure washing
  11,929 ft.^{2} x $0.92/ft.^{2} = $10,975

- labor
  (11,929 ft.^{2})/(40 ft.^{2}/hr.) x 1 man
  = 298 man-hrs.
  298 man-hrs. x $24/hr. = $ 7,152

Proposed Load/Unload Pump Pad Area: surface area = 293 ft.^{2}

- high pressure washing
  293 ft.^{2} x $0.92/ft.^{2} = $ 270

- labor
  (293 ft.^{2})/(40 ft.^{2}/hr.) x 1 man
  = 7 man-hrs.
  7 man-hrs. x $24/hr. = $ 168

Temporary Container Storage Area: surface area = 343 ft.^{2}

- high pressure washing
  343 ft.^{2} x $0.92/ft.^{2} = $ 316

- labor
  (343 ft.^{2})/(40 ft.^{2}/hr.) x 1 man
  = 9 man-hrs.
  9 man-hrs. x $24/hr. = $ 216

Loading/Unloading Pad: surface area = 1,080 ft.^{2}

- high pressure washing
  1,080 ft.^{2} x $0.92/ft.^{2} = $ 994

- labor
  (1,080 ft^2)/(40 ft.^{2}/hr.) x 1 man
  = 27 man-hrs.
  27 man-hrs. x $24/hr. = $ 648

Total area = 13,645 ft^2

TOTAL SECONDARY CONTAINMENT STRUCTURE DECONTAMINATION COST = $20,737

C5. Decontamination of Heavy Equipment

Unit costs for decontaminating heavy equipment and for mobilization/demobilization obtained from Guidance Manual. Heavy equipment decontaminated by steam cleaning. Residual generated at a rate of 100 gallons/hr. Assume this quantity to be negligible. Assume that facility-owned forklifts will be used.

Forklift decontamination cost = $27/piece + labor
at ($24/hr x 1 hr/piece) = $51/forklift
$51/forklift x 2 forklifts = $102

C6. Decontamination Rinsate Treatment and Disposal

Table I1-3, Decontamination Rinsate Management, provides quantities of rinsate generated and the method of treatment and disposal.

Quantity: 167,150 gal.

158,294 gal treated on site and discharged through sanitary sewer. Sludges will be further treated to meet discharge limits or be sent off-site for disposal.

pH adjust & flocc/precip = 158,294 gal x $0.07/gal	= $ 11,080
neutr/pH adjust = 8,357 gal x $0.07/gal	= $ 585
disposal = 6,268 gal x $1.49/gal	= $ 9,339
centrifuge = 6,268 gal x $0.30/gal	= $ 1,880
DW fuels = 3,134 gal x $0.45/gal	= $ 1,410
neutr/pH adjust = 3,134 gal x $0.07/gal	= $ 219

Additional contingency costs for off-site industrial wastewater treatment. Additional contingency costs are included to recognize the possibility of on-site treatment being unavailable at closure.

loading = 158,294 gal x $0.01/gal	= $ 1,583
transport = 158,294 gal x $0.05/gal	= $ 7,915

8,856 gal to off-site treatment and disposal at a RCRA-permitted facility.

loading = 8,856 gal x $0.01/gal	= $ 89
transport = 8,856 gal x $0.05/gal	= $ 443
disposal = 8,856 gal x $0.15/gal	= $ 1,328
TOTAL RINSATE TREATMENT AND DISPOSAL COST	= $ 35,871

TOTAL FACILITY DECONTAMINATION COST = $108,696

D. Sampling and Analytical Costs

The following cost estimates are summarized in Table I3-4, Sampling and Analytical Costs.

D1. Collection Costs for Concrete Samples

Assume 29 concrete samples will be collected from the concrete surface of containment pads and related sumps, at biased and random sampling locations, and 6 core samples will be collected from the central area of the existing dangerous waste tank system to verify the underlying concrete is free of contamination for a total of 35 samples (see Section I1.5.3, Sampling and Analysis). Unit cost for sample collection based on hourly rate for field technician ($22/hour from Guidance Manual). Each sample takes 1 hour to collect.

Total concrete samples = 35 samples x 1 hour/sample
x $22/hour = $770

D2. Analytical Cost for Concrete Samples

Assume concrete samples will be analyzed for parameters listed below, at unit costs listed below (from facility operating records). Includes analysis for constituents which may be present in wastestreams at levels too low for inclusion as a dangerous waste characteristic, but high enough to be of interest when evaluating whether the closure performance standard has been met.

Existing dangerous waste tank system (inc. 13 sumps) analyzed for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

17 samples x $960/sample = $16,320

Central area of existing dangerous waste tank system (inc. 4 sumps) analyzed for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

6 samples x $960/sample = $5,760

Proposed load/unload pump area (inc. 2 sumps) analyzed for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

2 samples x $960/sample = $1,920

Temporary container storage area (inc. 1 sump) analyzed for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

2 samples x $960/sample = $1,920

Load/unload pad (inc. 1 sump) analyzed for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

2 samples x $960/sample = $1,920

Soil samples under selected cracks or stains under tank system and temporary container storage containment areas analyzed for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

6 biased soil samples x $960/sample = $5,760

TOTAL ANALYTICAL COSTS FOR CONCRETE SAMPLES = $33,600

D3. Collection Costs for Soil Samples

Assume soil samples will be collected from a total of 58 locations during closure, consisting of 19 biased and 39 random sampling locations under dangerous waste management units. Random samples will be composited at a 3:1 ratio for all analyses except volatile organic compounds (see Section I1.5.3, Sampling and Analysis). A minimum of 8 background soil samples will also be collected. Unit cost for sample collection based on hourly rate for field technician ($22/hour from Guidance Manual). Each sample takes 1 hour to collect.

Containment area soil samples = 58 samples x $22/hour x 1 hour/sample = $1,276

TOTAL COLLECTION COSTS FOR SOIL SAMPLES = $1,276

D4. Analytical Costs for Soil Samples

Assume soil samples will be analyzed for parameters listed below, at unit costs listed below (from facility operating records). Includes analysis for constituents which may be present in wastestreams at levels too low for inclusion as a dangerous waste characteristic, but high enough to be of interest when evaluating whether the closure performance standard has been met. Random samples analyzed for volatiles = portions of random samples collected for 3:1 compositing.

Soil samples under dangerous waste tank system sumps analyzed for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

13 biased soil samples x $960/sample = $12,480

Soil samples under proposed load/unload pump pad area analyzed for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

1 biased soil sample x $960/sample = $960

Soil sample under temporary container storage area sump analyzed for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

1 biased soil sample x $960/sample = $960

Soil samples under load/unload pad sump analyzed for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

1 biased soil sample x $960/sample = $960

Random soil samples under dangerous waste tank system (30) composited at 3:1 ratio and analyzed for semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

10 composited random soil samples x $735/sample = $7,350

Random soil samples under existing dangerous waste tank system (30) analyzed for volatiles:

30 random soil samples x $225/sample = $6,750

Random soil samples under proposed load/unload pump pad area (3) composited at 3:1 ratio and analyzed for semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

1 composited random soil samples x $735/sample = $735

Random soil samples under proposed dangerous waste tank system (15) analyzed for volatiles:

3 random soil samples x $225/sample = $675

Random soil samples under temporary container storage area (3) composited at 3:1 ratio and analyzed for semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

1 composited random soil samples x $735/sample = $735

Random soil samples under temporary container storage area (3) analyzed for volatiles:

3 random soil samples x $225/sample = $675

Random soil samples under load/unload pad (3) composited at 3:1 ratio and analyzed for semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

1 composited random soil sample x $735/sample = $735

Random soil samples under load/unload pad (3) analyzed for volatiles:

3 random soil samples x $225/sample = $675

Soil samples under selected cracks under tank system and temporary container storage containment areas analyzed for volatiles, semi-volatiles, total metals, PCBs, sulfide, total petroleum hydrocarbons, and pH:

3 biased soil samples x $960/sample = $2,880

TOTAL ANALYTICAL COSTS FOR SOIL SAMPLES = $36,570

TOTAL SAMPLING & ANALYTICAL COSTS = $72,216

E. Miscellaneous Costs

E1. Personal Protective Equipment

It is assumed that 10 workers will need personal protective equipment including total body coveralls, gloves, goggles, respirator (half-mask), and hard hat at a cost of $100 per worker

10 workers x $100/worker = $ 1,000

E2. Engineering Certification

Unit cost obtained from Guidance Manual for professional engineer ($63/hr.). Assume engineer visits the site once per week during closure period at six hours/visit. Estimated period is 35 weeks.

1 visit/wk. x 35 wks. x 6 hrs/visit x $63/hr. = $13,230

Assume an additional eight hours for review of Closure Plan and four hours for preparation of final documentation.

(8 hrs. + 4 hrs.) x $63/hr. = $ 756

$ 13,230 + $ 756 = $13,986

APPENDIX I-3

TRUST AGREEMENT
FOR CLOSURE AND POST-CLOSURE

Revised, December 1990

CLOSURE AND POST-CLOSURE
TRUST AGREEMENT
OR
TRUST FUND

INTERIM STATUS
COMPLIANCE WITH
WAC 173-303-400 AND
40 CFR 265.143(a) FOR CLOSURE,
40 CFR 265.145(a) FOR POST-CLOSURE

FINAL STATUS
COMPLIANCE WITH
WAC 173-303-620 AND
40 CFR 264.143(a) FOR CLOSURE,
40 CFR 264.145(a) FOR POST-CLOSURE

AMENDED TRUST AGREEMENT

alw01/28

AMENDED TRUST AGREEMENT

The parties to this Amended Trust Agreement, the "Agreement" entered into as of January 1, 1986, are CHEMICAL PROCESSORS, INC., a Washington corporation, the "Grantor," and SEATTLE TRUST & SAVINGS BANK now known as KEY BANK OF PUGET SOUND, a banking corporation incorporated under the laws of the State of Washington, the "Trustee."

Recitals

WHEREAS, Grantor previously established with Trustee a Trust Agreement of July 7, 1982, in accord with federal and state regulations requiring owners and operators of hazardous waste management facilities to assure that funds will be available for proper closure of facilities that treat, store or dispose of hazardous waste and for post-closure care of hazardous waste disposal facilities; and

WHEREAS, the United States Environmental Protection Agency, an agency of the United States government, was named as a beneficiary of the Trust Agreement, and it has agreed with the Grantor that this role should be transferred to the Washington State Department of Ecology, "WDOE", an agency of the Washington State government, which change is acceptable to WDOE; and

WHEREAS, Grantor has requested the Trust Agreement be rewritten to indicate the change of administering agency and to revise the Trust Agreement to conform to the regulations of WDOE in other respects,

NOW, THEREFORE, effective upon the consent of the United States Environmental Protection Agency and WDOE evidenced by signature below, Grantor and Trustee agree as follows:

1. WDOE is substituted for the United States Environmental Protection Agency as the enforcement agency and beneficiary under the Trust Agreement dated July 7, 1982.

2. Simultaneously, the Trust Agreement is amended and restated in its entirety as set forth below, in order to conform to regulations of WDOE.

3. As provided below, henceforth all notices will be only to the WDOE and not to the United States Environmental Protection Agency, and WDOE shall be the only necessary

administrative agency as to any further amendment of the Trust Agreement.

4. The schedules of the Trust Agreement are changed currently to be as attached to this Agreement.

5. Each person signing or approving this Agreement warrants his or her authority to do so.

The amended and restated Trust Agreement as of January 1, 1986, is as follows:

TRUST AGREEMENT

TRUST AGREEMENT, the "Agreement," entered into as of January 1, 1986 by and between CHEMICAL PROCESSORS, INC., a Washington corporation, the "Grantor," and SEATTLE TRUST & SAVINGS BANK, a banking corporation incorporated in the State of Washington, the "Trustee."

WHEREAS, the Washington State Department of Ecology "WDOE," an agency of the Washington State Government, has established certain regulations applicable to the Grantor, requiring that an owner or operator of a dangerous waste management facility shall provide assurance that funds will be available when needed for closure and/or post-closure care of the facility,

WHEREAS, the Grantor has elected to establish a trust to provide all or part of such financial assurance for the facilities identified herein,

WHEREAS, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement, and the Trustee is willing to act as trustee,

NOW, THEREFORE, the Grantor and Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

Section 2. Identification of Facilities and Cost Estimates. This Agreement pertains to the facilities and cost estimates identified on attached Schedule A.

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund," for the benefit of WDOE. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by WDOE.

Section 4. Payment for Closure and Post-Closure Care. The Trustee shall make payments from the Fund as WDOE shall direct, in writing, to provide for the payment of the costs of closure and/or post-closure care of the facilities covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by WDOE from the Fund for closure and post-closure expenditures in such amounts as WDOE shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as WDOE specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting,

exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2.(a), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuation. The Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to WDOE a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days prior to the anniversary date of establishment of the fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and WDOE shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or

liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor Trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder.

Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, WDOE, and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Grantor may designate by amendment to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. All orders, requests, and instructions by WDOE to the Trustee shall be in writing, signed by WDOE, or its designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or WDOE hereunder has occurred. The Trustee shall have no duty to

act in the absence of such orders, requests, and instructions from the Grantor and/or WDOE, except as provided for herein.

Section 15. Notice of Nonpayment. The Trustee shall notify the Grantor and WDOE, by certified mail within 10 days following the expiration of the 30-day period after the anniversary of the establishment of the Trust, if no payment is received from the Grantor during that period. After the pay-in period is completed, the Trustee shall not be required to send a notice of nonpayment.

Section 16. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and WDOE, or by the Trustee and WDOE if the Grantor ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and WDOE, or by the Trustee and WDOE, if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 18. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or WDOE issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 19. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of Washington.

Section 20. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

IN WITNESS WHEREOF the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written. The parties below

certify that the wording of this Agreement is, with the exception of changes required by the Washington State Department of Ecology to assure compliance with the financial requirements of WAC 173-303-400 and/or WAC 173-303-620(10), identical to the wording specified in 40 CFR 264.151(a)(1) as such regulations were constituted on the date first above written.

CHEMICAL PROCESSORS, INC.

By _____
W. E. Fisher
Its President

Attest:

By _____
Its _____

[SEAL]

SEATTLE TRUST & SAVINGS BANK
NOW KNOWN AS KEY BANK OF PUGET SOUND

By _____
Its Asst. Vice President

Attest:

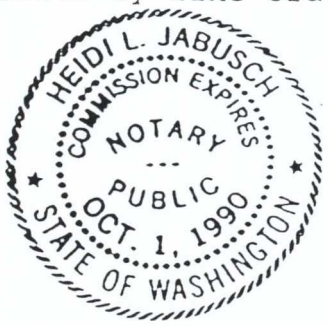
By _____
Its TRUST OFFICER

[SEAL]

STATE OF WASHINGTON)
: ss.
COUNTY OF KING)

On this 7th of August, 1987, before me personally came W. E. Fisher, to me known, who, being by me duly sworn, did depose and say that he resides at 4130 Boulevard Place, Mercer Island, Washington 98040, that he is President of CHEMICAL PROCESSORS, INC., the corporation described in and which executed the above instrument as its free and voluntary act for the uses and purposes stated therein; that he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the Board

of Directors of said corporation, and that he signed his name thereto by like order.



Heidi L. Jabusch
NOTARY PUBLIC in and for the State of Washington, residing at Auburn, Wash.

My Commission expires: 10-1-90

Chemical Processors, Inc. warrants that this Amended Trust Agreement is a fully enforceable Trust Agreement.

CHEMICAL PROCESSORS, INC.

By W. E. Fisher
Its President

THIS AMENDED TRUST AGREEMENT is consented to.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

By
Its Regional Administrator

WASHINGTON STATE DEPARTMENT OF ECOLOGY

By Christine O. Gregoire
Its Director

SCHEDULE A

This Agreement demonstrates financial assurance based on cost estimates for the following facilities.

EPA/State Identification Number of Facility	Name of Facility	Address of Facility	Cost Estimates for Assurance is Being Demonstrated by this Agreement	
WAD000812909	Chemical Processors Georgetown	734 S. Lucile St. Seattle, Wa. 98108	Closure	$1,208,841
			Post-Closure	nil
				$1,208,841
WAD000812917	Chemical Processors Pier 91	2001 W. Garfield Seattle, Wa. 98119	Closure	$1,030,582
			Post-Closure	nil
				$1,030,582
WAD020257945	Chemical Processors Tacoma	1701 Alexander Ave. Tacoma, Wa. 98421	Closure	$707,009
			Post-Closure	nil
				$707,009
WAD092399250	Chemical Processors Washougal	625 S. 32nd St. Washougal, Wa. 98671	Closure	$588,382
			Post-Closure	nil
				$588,382
WAD991281767	Chemical Processors Kent	20245 77th Ave. S. Kent, Washington 98032	Closure	$254,373
			Post-Closure	nil
				$254,373
		Total, All Cost Estimates:		$3,789,187

Cost estimates were updated as of August 1990.

SCHEDULE B

As of September 30, 1990, the Fund consists of assets valued at $1,298,738 (cost basis), invested in the following securities:

AIM Short Term Investment Company

Federal National Mortgage Association

Federal Home Loan Banks

U. S. Treasury Notes

CHEMPRO SM

A Burlington Environmental Inc Company

October 25, 1990

EXHIBIT A

Mr. Don Porter
Assistant Vice President
Key Bank
1000 Second Avenue
Seattle, Washington 98104

Dear Mr. Porter:

The following is a current list of officers/signators for Chemical Processors, Inc. and who have authority to sign on behalf of the Corporation:

Chief Executive Officer
Burlington Environmental Inc.

John M. Craig

Chief Financial Officer
Burlington Environmental Inc.

Stephen A. Coan

Vice President, Operations
Chemical Processors, Inc.

Michael P. Keller

Chemical Processors, Inc.

Alan D. Gursky

This should update your records. Please phone me if I can answer any further questions.

Sincerely,

Stephen A. Coan
Vice President - Finance & Treasurer

SAC/psh

APPENDIX I-4

CERTIFICATE OF LIABILITY INSURANCE

DANGEROUS WASTE FACILITY CERTIFICATE
OF LIABILITY INSURANCE

1. National Union Insurance Company, (the "Insurer"), of 70 Pine Street, New York, NY 10270, hereby certifies that it has issued liability insurance covering bodily injury and property damage to Chemical Processors, Inc., (the "Insured"), of 2203 Airport Way S., Seattle, WA in connection with the insured's obligation to demonstrate financial responsibility under 40 CER 265.147 (for interim status) or WAC 173-303-620 (for final status). The coverage applies at

EPA #WAD 000 812 909
734 South Lucille St.
Seattle, WA 98108

EPA #WAD 092-300-250
625 SW 32nd
Washougal, WA 98671

EPA #WAD 000 812 917
Pier 91
Seattle, WA 98119

EPA #WAD 020 257 945
1701 Alexander ST.
Tacoma, WA 98421

for "sudden accidental occurrences". The limits of liability are $10,000,000 "each occurrence" and $10,000,000 "annual aggregate" exclusive of legal defense costs. The coverage is provided under policy PLL 716 60 66 effective October 3, 1988.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 40 CFR 265.147(f) (for interim status) or WAC 173-303-620 (for final status).

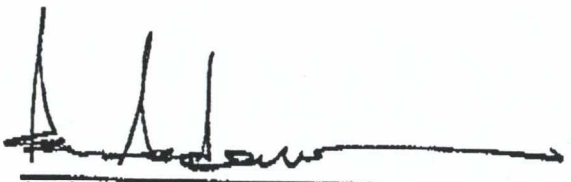
(c) Whenever requested by the Washington State Department of Ecology (WDOE), the Insurer agrees to furnish to WDOE a signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance whether by the Insurer or the insured, will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by WDOE.

(e) Any other termination of the insurance will be effective only upon written notice and only after

the expiration of thirty (30) days after a copy of such written notice is received by WDOE.

I hereby certify that the wording of this instrument is, with the exception of changes required by the Washington State Department of Ecology to assure compliance with the financial requirements of WAC 173-303-400 and/or WAC 173-303-620(10), identical to the wording specified in 40 CFR 264.151 (j) as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.



Authorized Representative of
National Union Insurance CO.

Issued to: U.S. EPA
Waste Management Branch (M/S 530A)
120 Sixth Avenue
Seattle, WA 98101

APPENDIX I-5

ANALYTICAL TEST METHODS AND DETECTION LIMITS
Revision, January 1990

APPENDIX I-5
ANALYTICAL TEST METHODS AND DETECTION LIMITS
FOR SOIL SAMPLES

EPA TEST METHOD	CONSTITUENT	DETECTION LIMIT
8240	Volatiles	See attached list
8270	Semi-Volatiles	See attached list
6010, except:	Total Metals	
Arsenic, 7061	Arsenic	1 ppm
Mercury, 7470	Barium	1 ppm
Selenium, 7740	Cadmium	1 ppm
	Chromium	1 ppm
	Lead	20 ppm
	Mercury	0.05 ppm
	Selenium	1 ppm
	Silver	2 ppm
9010	Cyanide (Total & Amenable)	1 ppm
8080	Polychlorinated Biphenyls (PCBs)	1 ppm
See attached list	Appendix IX	See attached list

Source: SW-846, unless otherwise noted.

ANALYTICAL
RESOURCES
INCORPORATED

Analytical
Chemists &
Consultants

333 Ninth Ave. North
Seattle, WA 98109-5187
(206) 621-6490
(206) 621-7523 (FAX)

ORGANICS ANALYSIS DATA SHEET
Volatiles by Method 624/8240

Sample No: Method Blank

Report prepared 04/26/89 - MAC:B

Instrument: FINN 5
Date Analyzed: 04/25/89

Amount Analyzed: 5.0 gm (Equiv. Dry Weight)
Percent Moisture: NA
pH: NA

CAS Number		µg/Kg
74-87-3	Chloromethane	5.0U
74-83-9	Bromomethane	3.0U
75-01-4	Vinyl Chloride	3.0U
75-00-3	Chloroethane	3.0U
75-09-2	Methylene Chloride	2.0U
67-64-1	Acetone	5.0U
75-15-0	Carbon Disulfide	2.0U
75-35-4	1,1-Dichloroethene	2.0U
75-34-3	1,1-Dichloroethane	1.0U
156-60-5	Trans-1,2-Dichloroethene	1.0U
156-59-2	Cis-1,2-Dichloroethene	1.0U
67-66-3	Chloroform	1.0U
107-06-2	1,2-Dichloroethane	1.0U
78-93-3	2-Butanone	7.5U
71-55-6	1,1,1-Trichloroethane	1.0U
56-23-5	Carbon Tetrachloride	1.0U
108-05-4	Vinyl Acetate	1.0U
75-27-4	Bromodichloromethane	1.0U

CAS Number		µg/Kg
78-87-5	1,2-Dichloropropane	1.0U
10061-02-6	Trans-1,3-Dichloropropene	1.0U
79-01-6	Trichloroethene	1.0U
124-48-1	Dibromochloromethane	1.0U
79-00-5	1,1,2-Trichloroethane	1.0U
71-43-2	Benzene	1.0U
10061-01-5	cis-1,3-Dichloropropene	1.0U
110-75-8	2-Chloroethylvinylether	1.0U
75-25-2	Bromoform	1.0U
108-10-1	4-Methyl-2-Pentanone	2.0U
591-78-6	2-Hexanone	4.0U
127-18-4	Tetrachloroethene	1.0U
79-34-5	1,1,2,2-Tetrachloroethane	1.0U
108-88-3	Toluene	1.0U
108-90-7	Chlorobenzene	1.0U
100-41-4	Ethylbenzene	1.0U
100-42-5	Styrene	1.0U
1330-20-7	Total Xylenes	1.0U

Surrogate Recoveries

d8-Toluene	99.7%
Bromofluorobenzene	98.3%
d4-1,2-Dichloroethane	97.6%

Data Reporting Qualifiers

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected at the given detection limit.

J Indicates an estimated value when result is less than specified detection limit.

NR Analysis not required.

B This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.

K This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.

M Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

ORGANICS ANALYSIS DATA SHEET

Semi-Volatiles by Method 625/8270

ANALYTICAL
RESOURCES
INCORPORATED

Seattle, WA 98109-5187
(206) 621-6490
(206) 621-7523 (FAX)

Matrix: Soils/Sediments

Sample Wt: 30.0 gm (Equivalent Dry Weight)
Percent Moisture: NA
pH: NA
Conc/Dilution: 1 to 1

Date extracted: 09/05/89
Analyzed (FINN 4): 09/11/89
GPC Clean-up: YES (1 of 2)

CAS Number		µg/Kg
108-95-2	Phenol	130U
111-44-4	bis(2-Chloroethyl)Ether	67U
95-57-8	2-Chlorophenol	67U
541-73-1	1,3-Dichlorobenzene	67U
106-46-7	1,4-Dichlorobenzene	67U
100-51-6	Benzyl Alcohol	330U
95-50-1	1,2-Dichlorobenzene	67U
95-48-7	2-Methylphenol	67U
108-60-1	bis(2-chloroisopropyl)Ether	67U
106-44-5	4-Methylphenol	67U
621-64-7	N-Nitroso-Di-n-Propylamine	67U
67-72-1	Hexachloroethane	130U
98-95-3	Nitrobenzene	67U
78-59-1	Isophorone	67U
88-75-5	2-Nitrophenol	330U
105-67-9	2,4-Dimethylphenol	130U
65-85-0	Benzoic Acid	670U
111-91-1	bis(2-Chloroethoxy)Methane	67U
120-83-2	2,4-Dichlorophenol	200U
120-82-1	1,2,4-Trichlorobenzene	67U
91-20-3	Naphthalene	67U
106-47-8	4-Chloroaniline	200U
87-68-3	Hexachlorobutadiene	130U
59-50-7	4-Chloro-3-Methylphenol	130U
91-57-6	2-Methylnaphthalene	67U
77-47-4	Hexachlorocyclopentadiene	330U
88-06-2	2,4,6-Trichlorophenol	330U
95-95-4	2,4,5-Trichlorophenol	330U
91-58-7	2-Chloronaphthalene	67U
88-74-4	2-Nitroaniline	330U
131-11-3	Dimethyl Phthalate	67U
208-96-8	Acenaphthylene	67U
99-09-2	3-Nitroaniline	330U

CAS Number		µg/Kg
83-32-9	Acenaphthene	67U
51-28-5	2,4-Dinitrophenol	670U
100-02-7	4-Nitrophenol	330U
132-64-9	Dibenzofuran	67U
121-14-2	2,4-Dinitrotoluene	330U
606-20-2	2,6-Dinitrotoluene	330U
84-66-2	Diethylphthalate	67U
7005-72-3	4-Chlorophenyl-phenylether	67U
86-73-7	Fluorene	67U
100-01-6	4-Nitroaniline	330U
534-52-1	4,6-Dinitro-2-Methylphenol	670U
86-30-6	N-Nitrosodiphenylamine(1)	67U
101-55-3	4-Bromophenyl-phenylether	67U
118-74-1	Hexachlorobenzene	67U
87-86-5	Pentachlorophenol	330U
85-01-8	**Phenanthrene**	**42J**
120-12-7	Anthracene	67U
84-74-2	Di-n-Butylphthalate	67U
206-44-0	Fluoranthene	67U
129-00-0	Pyrene	67U
85-68-7	Butylbenzylphthalate	67U
91-94-1	3,3'-Dichlorobenzidine	330U
56-55-3	Benzo(a)Anthracene	67U
117-81-7	bis(2-Ethylhexyl)Phthalate	67U
218-01-9	Chrysene	67U
117-84-0	Di-n-Octyl Phthalate	67U
205-99-2	Benzo(b)Fluoranthene	67U
207-08-9	Benzo(k)Fluoranthene	67U
50-32-8	Benzo(a)Pyrene	67U
193-39-5	Indeno(1,2,3-cd)Pyrene	67U
53-70-3	Dibenz(a,h)Anthracene	67U
191-24-2	Benzo(ghi)Perylene	67U

(1) Cannot be separated from diphenylamine

***Base/neutral surrogate recoveries**

d5-Nitrobenzene	71.5%
2-Fluorobiphenyl	88.4%
d14-p-Terphenyl	81.0%

***Acid surrogate recoveries**

d5-Phenol	81.7%
2-Fluorophenol	64.8%
2,4,6-Tribromophenol	62.9%

APPENDIX IX—GROUND-WATER MONITORING LIST [1]

[Appendix IX added by 52 FR 25946, July 9, 1987]

Common name [2]	CAS RN [3]	Chemical abstracts service index name [4]	Suggested methods [5]	PQL (μg/L) [6]
Acenaphthene	83-32-9	Acenaphthylene, 1,2-dihydro-	8100	200
			8270	10
Acenaphthylene	208-96-8	Acenaphthylene	8100	200
			8270	10
Acetone	67-64-1	2-Propanone	8240	100
Acetophenone	98-86-2	Ethanone, 1-phenyl-	8270	10
Acetonitrile; Methyl cyanide	75-05-8	Acetonitrile	8015	100
2-Acetylaminofluorene; 2-AAF	53-96-3	Acetamide, N-9H-fluoren-2-yl-	8270	10
Acrolein	107-02-8	2-Propenal	8030	5
			8240	5
Acrylonitrile	107-13-1	2-Propenenitrile	8030	5
			8240	5
Aldrin	309-00-2	1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro- (1α,4α,4aβ,5α,8α,8aβ)-	8080	0.05
			8270	10
Allyl chloride	107-05-1	1-Propene, 3-chloro-	8010	5
			8240	100
4-Aminobiphenyl	92-67-1	[1,1'-Biphenyl]-4-amine	8270	10
Aniline	62-53-3	Benzenamine	8270	10
Anthracene	120-12-7	Anthracene	8100	200
			8270	10
Antimony	(Total)	Antimony	6010	300
			7040	2,000
			7041	30
Aramite	140-57-8	Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl ester	8270	10
Arsenic	(Total)	Arsenic	6010	500
			7060	10
			7061	20
Barium	(Total)	Barium	6010	20
			7080	1,000
Benzene	71-43-2	Benzene	8020	2
			8240	5

NOTE: Detection limits listed in Appendix IX are for analysis of groundwater. Detection limits for analysis of Appendix IX constituents in soil are not readily available.

APPENDIX IX—GROUND-WATER MONITORING LIST [1]—Continued

Common name [2]	CAS RN [3]	Chemical abstracts service index name [4]	Suggested methods [5]	PQL (µg/L) [6]
Benzo[a]anthracene; Benzanthracene	56-55-3	Benz[a]anthracene	8100	200
			8270	10
Benzo[b]fluoranthene	205-99-2	Benz[e]acephenanthrylene	8100	200
			8270	10
Benzo[k]fluoranthene	207-08-9	Benzo[k]fluoranthene	8100	200
			8270	10
Benzo[ghi]perylene	191-24-2	Benzo[ghi]perylene	8100	200
			8270	10
Benzo[a]pyrene	50-32-8	Benzo[a]pyrene	8100	200
			8270	10
Benzyl alcohol	100-51-6	Benzenemethanol	8270	20
Beryllium	(Total)	Beryllium	6010	3
			7090	50
			7091	2
alpha-BHC	319-84-6	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1α,2α,3β,4α,5β,6β)-	8080	0.05
			8250	10
beta-BHC	319-85-7	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1α,2β,3α,4β,5α,6β)-	8080	0.05
			8250	40
delta-BHC	319-86-8	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1α,2α 3α,4β,5α,6β)-	8080	0.1
			8250	30
gamma-BHC; Lindane	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1α,2α,3β,4α,5α,6β)-	8080	0.05
			8250	10
Bis(2-chloroethoxy)methane	111-91-1	Ethane, 1,1'-[methylenebis (oxy)]bis[2-chloro-	8270	10
Bis(2-chloroethyl)ether	111-44-4	Ethane, 1,1'-oxybis[2-chloro-	8270	10
Bis(2-chloro-1-methylethyl) ether; 2,2'-Dichlorodiisopropyl ether	108-60-1	Propane, 2,2'-oxybis[1-chloro-	8010	100
			8270	10
Bis(2-ethylhexyl) phthalate	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl)ester	8060	20
			8270	10
Bromodichloromethane	75-27-4	Methane, bromodichloro-	8010	1
			8240	5
Bromoform; Tribromomethane	75-25-2	Methane, tribromo-	8010	2
			8240	5
4-Bromophenyl phenyl ether	101-55-3	Benzene, 1-bromo-4-phenoxy-	8270	10
Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester	8060	5
			8270	10
Cadmium	(Total)	Cadmium	6010	40
			7130	50
			7131	1
Carbon disulfide	75-15-0	Carbon disulfide	8240	5
Carbon tetrachloride	56-23-5	Methane, tetrachloro-	8010	1
			8240	5
Chlordane	57-74-9	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	8080	0.1
			8250	10
			8270	20
p-Chloroaniline	106-47-8	Benzenamine, 4-chloro-	8010	2
Chlorobenzene	108-90-7	Benzene, chloro-	8020	2
			8240	5
Chlorobenzilate	510-15-6	Benzeneacetic acid, 4-chloro-α-(4-chlorophenyl)-α-hydroxy-, ethyl ester	8270	10
p-Chloro-m-cresol	59-50-7	Phenol, 4-chloro-3-methyl-	8040	5
			8270	20
Chloroethane; Ethyl chloride	75-00-3	Ethane, chloro-	8010	5
			8240	10
Chloroform	67-66-3	Methane, trichloro-	8010	0.5
			8240	5
2-Chloronaphthalene	91-58-7	Naphthalene, 2-chloro-	8120	10
			8270	10
2-Chlorophenol	95-57-8	Phenol, 2-chloro-	8040	5
			8270	10

[Appendix IX]

APPENDIX IX—GROUND-WATER MONITORING LIST [1]—Continued

Common name [2]	CAS RN [3]	Chemical abstracts service index name [4]	Suggested methods [5]	PQL (µg/L) [6]
4-Chlorophenyl phenyl ether	7005-72-3	Benzene, 1-chloro-4-phenoxy-	8270	10
Chloroprene	126-99-8	1,3-Butadiene, 2-chloro-	8010	50
			8240	5
Chromium	(Total)	Chromium	6010	70
			7190	500
			7191	10
Chrysene	218-01-9	Chrysene	8100	200
			8270	10
Cobalt	(Total)	Cobalt	6010	70
			7200	500
			7201	10
Copper	(Total)	Copper	6010	60
			7210	200
m-Cresol	108-39-4	Phenol, 3-methyl-	8270	10
o-Cresol	95-48-7	Phenol, 2-methyl-	8270	10
p-Cresol	106-44-5	Phenol, 4-methyl-	8270	10
Cyanide	57-12-5	Cyanide	9010	40
2,4-D; 2,4-Dichlorophenoxyacetic acid	94-75-7	Acetic acid, (2,4-dichlorophenoxy)-	8150	10
4,4'-DDD	72-54-8	Benzene 1,1'-(2,2-dichloroethylidene)bis[4-chloro-	8080	0.1
			8270	10
4,4'-DDE	72-55-9	Benzene 1,1'-(dichloroethylidene)bis[4-chloro-	8080	0.05
			8270	10
4,4'-DDT	50-29-3	Benzene 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	8080	0.1
			8270	10
Diallate	2303-16-4	Carbamothioic acid, bis(1-methylethyl)- , S- (2,3-dichloro-2-propenyl) ester	8270	10
Dibenz[a,h]anthracene	53-70-3	Dibenz[a,h]anthracene	8100	200
			8270	10
Dibenzofuran	132-64-9	Dibenzofuran	8270	10
Dibromochloromethane; Chlorodibromomethane	124-48-1	Methane, dibromochloro-	8010	1
			8240	5
1,2-Dibromo-3-chloropropane; DBCP	96-12-8	Propane, 1,2-dibromo-3-chloro-	8010	100
			8240	5
			8270	10
1,2-Dibromoethane; Ethylene dibromide	106-93-4	Ethane, 1,2-dibromo-	8010	10
			8240	5
Di-n-butyl phthalate	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester	8060	5
			8270	10
o-Dichlorobenzene	95-50-1	Benzene, 1,2-dichloro-	8010	2
			8020	5
			8120	10
			8270	10
m-Dichlorobenzene	541-73-1	Benzene, 1,3-dichloro-	8010	5
			8020	5
			8120	10
			8270	10
p-Dichlorobenzene	106-46-7	Benzene, 1,4-dichloro-	8010	2
			8020	5
			8120	15
			8270	10
3,3'-Dichlorobenzidine	91-94-1	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-	8270	20
trans-1,4-Dichloro-2-butene	110-57-6	2-Butene, 1,4-dichloro-, (E)-	8240	5
Dichlorodifluoromethane	75-71-8	Methane, dichlorodifluoro-	8010	10
			8240	5
1,1-Dichloroethane	75-34-3	Ethane, 1,1-dichloro-	8010	1
			8240	5
1,2-Dichloroethane; Ethylene dichloride	107-06-2	Ethane, 1,2-dichloro-	8010	0.5
			8240	5

APPENDIX IX—GROUND-WATER MONITORING LIST [1]—Continued

Common name [2]	CAS RN [3]	Chemical abstracts service index name [4]	Suggested methods [5]	PQL (µg/L) [6]
1,1-Dichloroethylene; Vinylidene chloride	75-35-4	Ethene, 1,1-dicnloro-	8010	1
			8240	5
trans-1,2-Dichloroethylene	156-60-5	Ethene, 1,2-dichloro-, (E)-	8010	1
			8240	5
2,4-Dichlorophenol	120-83-2	Phenol, 2,4-dichloro-	8040	5
			8270	10
2,6-Dichlorophenol	87-65-0	Phenol, 2,6-dichloro-	8270	10
1,2-Dichloropropane	78-87-5	Propane, 1,2-dichloro-	8010	0.5
			8240	5
cis-1,3-Dichloropropene	10061-01-5	1-Propene, 1,3-dichloro-, (Z)-	8010	20
			8240	5
trans-1,3-Dichloropropene	10061-02-6	1-Propene, 1,3-dichloro-, (E)-	8010	5
			8240	5
Dieldrin	60-57-1	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aα,2β,2aα,3β,6β,6aα,7β,7aα)-	8080	0.05
			8270	10
Diethyl phthalate	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester	8060	5
			8270	10
O,O-Diethyl O-2-pyrazinyl phosphorothioate; Thionazin	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	8270	10
Dimethoate	60-51-5	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester	8270	10
p-(Dimethylamino)azobenzene	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-	8270	10
7,12-Dimethylbenz[a]anthracene	57-97-6	Benz[a]anthracene, 7,12-dimethyl-	8270	10
3,3'-Dimethylbenzidine	119-93-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-	8270	10
alpha, alpha-Dimethylphenethylamine	122-09-8	Benzeneethanamine, α,α-dimethyl-	8270	10
2,4-Dimethylphenol	105-67-9	Phenol, 2,4-dimethyl-	8040	5
			8270	10
Dimethyl phthalate	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester	8060	5
			8270	10
m-Dinitrobenzene	99-65-0	Benzene, 1,3-dinitro-	8270	10
4,6-Dinitro-o-cresol	534-52-1	Phenol, 2-methyl-4,6-dinitro-	8040	150
			8270	50
2,4-Dinitrophenol	51-28-5	Phenol, 2,4-dinitro-	8040	150
			8270	50
2,4-Dinitrotoluene	121-14-2	Benzene, 1-methyl-2,4-dinitro-	8090	0.2
			8270	10
2,6-Dinitrotoluene	606-20-2	Benzene, 2-methyl-1,3-dinitro-	8090	0.1
			8270	10
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	8150	1
			8270	10
Di-n-octyl phthalate	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester	8060	30
			8270	10
1,4-Dioxane	123-91-1	1,4-Dioxane	8015	150
Diphenylamine	122-39-4	Benzenamine, N-phenyl-	8270	10
Disulfoton	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)-ethyl]ester S-[2-	8140	2
			8270	10
Endosulfan I	959-98-8	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3α,5aβ,6α,9α,9aβ)-	8080	0.1
			8250	10
Endosulfan II	33213-65-9	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro- -1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3α,5aα,6β,9β,9aα)-	8080	0.05
Endosulfan sulfate	1031-07-8	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro- 1,5,5a,6,9,9a-hexahydro-, 3,3-dioxide.	8080	0.5
			8270	10
Endrin	72-20-8	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aα,2β,2aβ,3α,6α, 6aβ,7β,7aα)-	8080	0.1
			8250	10
Endrin aldehyde	7421-93-4	1,2,4-Methenocyclopenta[cd]pentalene-5-carboxaldehyde, 2,2a,3,3,4,7-hexachlorodecahydro-, (1α,2β,2aβ,4β,4aβ,5β,6aβ,6bβ,7R*)-	8080	0.2
			8270	10

[Appendix IX]

APPENDIX IX—GROUND-WATER MONITORING LIST [1]—Continued

Common name [2]	CAS RN [3]	Chemical abstracts service index name [4]	Suggested methods [5]	PQL (µg/L) [6]
Ethylbenzene	100-41-4	Benzene, ethyl-	8020	2
			8240	5
Ethyl methacrylate	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester	8015	10
			8240	5
			8270	10
Ethyl methanesulfonate	62-50-0	Methanesulfonic acid, ethyl ester	8270	10
Famphur	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl]-O,O-dimethyl ester	8270	10
Fluoranthene	206-44-0	Fluoranthene	8100	200
			8270	10
Fluorene	86-73-7	9H-Fluorene	8100	200
			8270	10
Heptachlor	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	8080	0.05
			8270	10
Heptachlor epoxide	1024-57-3	2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a,-hexahydro-, (1aα,1bβ,2α,5α,5aβ,6β,6aα)	8080	1
			8270	10
Hexachlorobenzene	118-74-1	Benzene, hexachloro-	8120	0.5
			8270	10
Hexachlorobutadiene	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	8120	5
			8270	10
Hexachlorocyclopentadiene	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	8120	5
			8270	10
Hexachloroethane	67-72-1	Ethane, hexachloro-	8120	0.5
			8270	10
Hexachlorophene	70-30-4	Phenol, 2,2'-methylenebis[3,4,6-trichloro-	8270	10
Hexachloropropene	1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-	8270	10
2-Hexanone	591-78-6	2-Hexanone	8240	50
Indeno(1,2,3-cd)pyrene	193-39-5	Indeno[1,2,3-cd]pyrene	8100	200
			8270	10
Isobutyl alcohol	78-83-1	1-Propanol, 2-methyl-	8015	50
Isodrin	465-73-6	1,4,5,8-Dimethanonaphthalene,1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a hexahydro-(1α,4α,4aβ,5β,8β,8aβ)-	8270	10
Isophorone	78-59-1	2-Cyclohexen-1-one, 3,5,5-trimethyl-	8090	60
			8270	10
Isosafrole	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-	8270	10
Kepone	143-50-0	1,3,4-Metheno-2H-cyclobuta-[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-	8270	10
Lead	(Total)	Lead	6010	40
			7420	1,000
			7421	10
Mercury	(Total)	Mercury	7470	2
Methacrylonitrile	126-98-7	2-Propenenitrile, 2-methyl-	8015	5
			8240	5
Methapyrilene	91-80-5	1,2,Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-	8270	10
Methoxychlor	72-43-5	Benzene, 1,1'-(2,2,2,trichloroethylidene)bis[4-methoxy-	8080	2
			8270	10
Methyl bromide; Bromomethane	74-83-9	Methane, bromo-	8010	20
			8240	10
Methyl chloride; Chloromethane	74-87-3	Methane, chloro-	8010	1
			8240	10
3-Methylcholanthrene	56-49-5	Benz[]aceanthrylene, 1,2-dihydro-3-methyl-	8270	10
Methylene bromide; Dibromomethane	74-95-3	Methane, dibromo-	8010	15
			8240	5
Methylene chloride; Dichloromethane	75-09-2	Methane, dichloro-	8010	5
			8240	5

[Appendix IX]

APPENDIX IX—GROUND-WATER MONITORING LIST [1]—Continued

Common name [2]	CAS RN [3]	Chemical abstracts service index name [4]	Suggested methods [5]	PQL (µg/L) [6]
Methyl ethyl ketone; MEK	78-93-3	2-Butanone	8015	10
			8240	100
Methyl iodide; Iodomethane	74-88-4	Methane, iodo-	8010	40
			8240	5
Methyl methacrylate	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester	8015	2
			8240	5
Methyl methanesulfonate	66-27-3	Methanesulfonic acid, methyl ester	8270	10
2-Methylnaphthalene	91-57-6	Naphthalene, 2-methyl-	8270	10
Methyl parathion; Parathion methyl	298-00-0	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	8140	0.5
			8270	10
4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1	2-Pentanone, 4-methyl-	8015	5
			8240	50
Naphthalene	91-20-3	Naphthalene	8100	200
			8270	10
1,4-Naphthoquinone	130-15-4	1,4-Naphthalenedione	8270	10
1-Naphthylamine	134-32-7	1-Naphthalenamine	8270	10
2-Naphthylamine	91-59-8	2-Naphthalenamine	8270	10
Nickel	(Total)	Nickel	6010	50
			7520	400
o-Nitroaniline	88-74-4	Benzenamine, 2-nitro-	8270	50
m-Nitroaniline	99-09-2	Benzenamine, 3-nitro-	8270	50
p-Nitroaniline	100-01-6	Benzenamine, 4-nitro-	8270	50
Nitrobenzene	98-95-3	Benzene, nitro-	8090	40
			8270	10
o-Nitrophenol	88-75-5	Phenol, 2-nitro-	8040	5
			8270	10
p-Nitrophenol	100-02-7	Phenol, 4-nitro-	8040	10
			8270	50
4-Nitroquinoline 1-oxide	56-57-5	Quinoline, 4-nitro-, 1-oxide	8270	10
N-Nitrosodi-n-butylamine	924-16-3	1-Butanamine, N-butyl-N-nitroso-	8270	10
N-Nitrosodiethylamine	55-18-5	Ethanamine, N-ethyl-N-nitroso-	8270	10
N-Nitrosodimethylamine	62-75-9	Methanamine, N-methyl-N-nitroso-	8270	10
N-Nitrosodiphenylamine	86-30-6	Benzenamine, N-nitroso-N-phenyl-	8270	10
N-Nitrosodipropylamine; Di-n-propylnitrosamine	621-64-7	1-Propanamine, N-nitroso-N-propyl-	8270	10
N-Nitrosomethylethylamine	10595-95-6	Ethanamine, N-methyl-N-nitroso-	8270	10
N-Nitrosomorpholine	59-89-2	Morpholine, 4-nitroso-	8270	10
N-Nitrosopiperidine	100-75-4	Piperidine, 1-nitroso-	8270	10
N-Nitrosopyrrolidine	930-55-2	Pyrrolidine, 1-nitroso-	8270	10
5-Nitro-o-toluidine	99-55-8	Benzenamine, 2-methyl-5-nitro-	8270	10
Parathion	56-38-2	Phosphorothioic acid, O,O-diethyl-O-(4-nitrophenyl) ester	8270	10
Polychlorinated biphenyls; PCBs	See Note 7	1,1'-Biphenyl, chloro derivatives	8080	50
			8250	100
Polychlorinated dibenzo-p-dioxins; PCDDs	See Note 8	Dibenzo[b,e][1,4]dioxin, chloro derivatives	8280	0.01
Polychlorinated dibenzofurans; PCDFs	See Note 9	Dibenzofuran, chloro derivatives	8280	0.01
Pentachlorobenzene	608-93-5	Benzene, pentachloro-	8270	10
Pentachloroethane	76-01-7	Ethane, pentachloro-	8240	5
			8270	10
Pentachloronitrobenzene	82-68-8	Benzene, pentachloronitro-	8270	10
Pentachlorophenol	87-86-5	Phenol, pentachloro-	8040	5
			8270	50
Phenacetin	62-44-2	Acetamide, N-(4-ethoxyphenyl)	8270	10
Phenanthrene	85-01-8	Phenanthrene	8100	200
			8270	10
Phenol	108-95-2	Phenol	8040	1
			8270	10
p-Phenylenediamine	106-50-3	1,4-Benzenediamine	8270	10
Phorate	298-02-2	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester	8140	2
			8270	10

APPENDIX IX.—GROUND-WATER MONITORING LIST [1]—Continued

Common name [2]	CAS RN [3]	Chemical abstracts service index name [4]	Suggested methods [5]	PQL (µg/L) [6]
2-Picoline	109-06-8	Pyridine, 2-methyl-	8240	5
Pronamide	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	8270	10
Propionitrile; Ethyl cyanide	107-12-0	Propanenitrile	8270	10
			8015	60
Pyrene	129-00-0	Pyrene	8240	5
			8100	200
Pyridine	110-86-1	Pyridine	8270	10
			8240	5
Safrole	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)-	8270	10
Selenium	(Total)	Selenium	6010	750
			7740	20
Silver	(Total)	Silver	7741	20
			6010	70
Silvex; 2,4,5-TP	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	7760	100
Styrene	100-42-5	Benzene, ethenyl-	8150	2
			8020	1
Sulfide	18496-25-8	Sulfide	8240	5
2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-	9030	10,000
2,3,7,8-TCDD; 2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6	Dibenzo[b,e][1,4]dioxin, 2,3,7,8-tetrachloro-	8150	2
			8280	0.005
1,2,4,5-Tetrachlorobenzene	95-94-3	Benzene, 1,2,4,5-tetrachloro-		
1,1,1,2-Tetrachloroethane	630-20-6	Ethane, 1,1,1,2-tetrachloro-	8270	10
			8010	5
1,1,2,2-Tetrachloroethane	79-34-5	Ethane, 1,1,2,2-tetrachloro-	8240	5
			8010	0.5
Tetrachloroethylene; Perchloroethylene; Tetrachloroethene	127-18-4	Ethene, tetrachloro-	8240	5
			8010	0.5
2,3,4,6-Tetrachlorophenol	58-90-2	Phenol, 2,3,4,6-tetrachloro-	8240	5
Tetraethyl dithiopyrophosphate; Sulfotepp	3689-24-5	Thiodiphosphoric acid ([(HO)$_2$P(S)]$_2$O), tetraethyl ester	8270	10
Thallium	(Total)	Thallium	8270	10
			6010	400
Tin	(Total)	Tin	7840	1,000
Toluene	108-88-3	Benzene, methyl-	7841	10
			7870	8,000
o-Toluidine	95-53-4	Benzenamine, 2-methyl-	8020	2
Toxaphene	8001-35-2	Toxaphene	8240	5
			8270	10
1,2,4-Trichlorobenzene	120-82-1	Benzene, 1,2,4-trichloro-	8080	2
1,1,1-Trichloroethane; Methylchloroform	71-55-6	Ethane, 1,1,1-trichloro-	8250	10
1,1,2-Trichloroethane	79-00-5	Ethane, 1,1,2-trichloro-	8270	10
			8240	5
Trichloroethylene; Trichloroethene	79-01-6	Ethene, trichloro-	8010	0.2
			8240	5
Trichlorofluoromethane	75-69-4	Methane, trichlorofluoro-	8010	1
			8240	5
2,4,5-Trichlorophenol	95-95-4	Phenol, 2,4,5-trichloro-	8010	10
2,4,6-Trichlorophenol	88-06-2	Phenol, 2,4,6-trichloro-	8240	5
			8270	10
1,2,3-Trichloropropane	96-18-4	Propane, 1,2,3-trichloro-	8040	5
			8270	10
O,O,O-Triethyl phosphorothioate	126-68-1	Phosphorothioic acid, O,O,O-triethyl ester	8010	10
sym-Trinitrobenzene	99-35-4	Benzene, 1,3,5-trinitro-	8240	5
Vanadium	(Total)	Vanadium	8270	10
			8270	10
			6010	80
			7910	2,000
			7911	40

APPENDIX IX—GROUND-WATER MONITORING LIST [1]—Continued

Common name [2]	CAS RN [3]	Chemical abstracts service index name [4]	Suggested methods [5]	PQL (µg/L) [6]
Vinyl acetate	108-05-4	Acetic acid, ethenyl ester	8240	5
Vinyl chloride	75-01-4	Ethene, chloro-	8010	2
			8240	10
Xylene (total)	1330-20-7	Benzene, dimethyl-	8020	5
			8240	5
Zinc	(Total)	Zinc	6010	20
			7950	50

[1] The regulatory requirements pertain only to the list of substances; the right hand columns (Methods and PQL) are given for informational purposes only. See also footnotes 5 and 6.

[2] Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[3] Chemical Abstracts Service registry number. Where "Total" is entered, all species in the ground water that contain this element are included.

[4] CAS index names are those used in the 9th Cumulative Index.

[5] Suggested Methods refer to analytical procedure numbers used in EPA Report SW-846 "Test Methods for Evaluating Solid Waste", third edition, November 1986. Analytical details can be found in SW-846 and in documentation on file at the agency. CAUTION: The methods listed are representative SW-846 procedures and may not always be the most suitable method(s) for monitoring an analyte under the regulations.

[6] Practical Quantitation Limits (PQLs) are the lowest concentrations of analytes in ground waters that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions. The PQLs listed are generally stated to one significant figure. CAUTION: The PQL values in many cases are based only on a general estimate for the method and not on a determination for individual compounds; PQLs are not a part of the regulation.

[7] Polychlorinated biphenyls (CAS RN 1336-36-3); this category contains congener chemicals, including constituents of Aroclor-1016 (CAS RN 12674-11-2), Aroclor-1221 (CAS RN 11104-28-2), Aroclor-1232 (CAS RN 11141-16-5), Aroclor-1242 (CAS RN 53469-21-9), Aroclor-1248 (CAS RN 12672-29-6), Aroclor-1254 (CAS RN 11097-69-1), and Aroclor-1260 (CAS RN 11096-82-5). The PQL shown is an average value for PCB congeners.

[8] This category contains congener chemicals, including tetrachlorodibenzo-p-dioxins (see also 2,3,7,8-TCDD), pentachlorodibenzo-p-dioxins, and hexachlorodibenzo-p-dioxins. The PQL shown is an average value for PCDD congeners.

[9] This category contains congener chemicals, including tetrachlorodibenzofurans, pentachlorodibenzofurans, and hexachlorodibenzofurans. The PQL shown is an average value for PCDF congeners.

APPENDIX I-6

CLOSURE DEMONSTRATION
Revision, January 1990, July 1990

APPENDIX I-6
CLOSURE DEMONSTRATION

This appendix describes the approach chosen by Chemical Processors, Inc. for demonstrating successful closure via soil sampling under dangerous waste management units at the Pier 91 Facility. This approach incorporates regulatory guidance on facility closure and site cleanup, including guidance and rules issued by the U.S. Environmental Protection Agency, and the Washington Department of Ecology's August 1989 guidance for the review and development of tank and containment system closure plans.

Steps included in the closure demonstration are divided into 3 basic areas:

1. Evaluate background soil sample data;
2. Evaluate closure soil sample data, and compare to background soil sample data; and
3. Further evaluation, remediation, or soil sampling, as necessary.

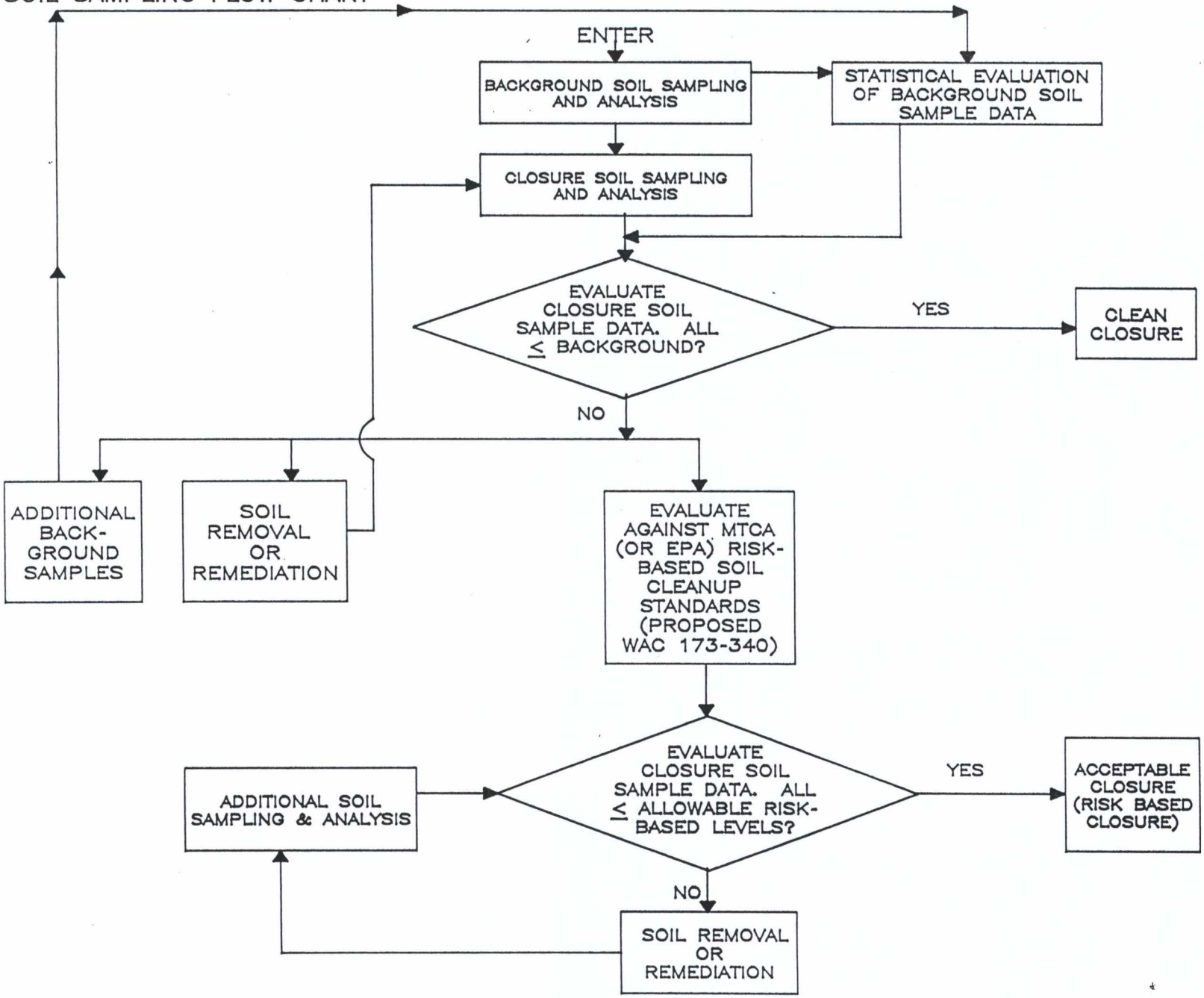
This approach to closure demonstration is depicted in the attached flow chart, and is discussed in further detail below.

Evaluation of Background Soil Sample Data

Analytical data for background soil samples will be reviewed to identify statistical features such as distributional form and possible outliers. A statistical test at least as strict as the following will be used to identify statistical outliers. The mean plus four standard deviations of all data except the maximum value in the background data will be computed and compared to the maximum value. If it exceeds the mean plus 4 standard deviations, it will be identified as a high outlier.

Any identified high outlier values will be carefully reviewed to search for reasons for the high reading. Factors to be reviewed may include data recording methods, soil sampling procedures, analytical procedures, activities near the soil sampling location, and other supporting information relevant to sampling and analysis. If the high outlier value is found to be in error or affected by an external factor (e.g., facility operations or other source of contamination), it will be deleted and a replacement soil sample collected. Data will not be dropped without identification of an error or

CLOSURE: SOIL SAMPLING FLOW CHART



extraneous effect, except that any values that are an order of magnitude or more above the next highest value will be deleted.

If, in the future, constituents of wastes handled on site differ from currently anticipated characteristics, and Appendix IX analyses do not adequately characterize all constituents, additional background soil samples may be taken to provide relevant data for comparison to closure soil samples. Additional background soil samples may also be taken if required for further evaluation of results obtained during analysis of closure soil samples (see description below).

Evaluation of Closure Soil Sample Data, and Comparison to Background Soil Sample Data

Analytical results from soil samples taken during unit closure will be compared to analytical data on background materials to determine whether contamination is present in soils under dangerous waste management units.

The closure plan guidance document issued by Ecology in August 1989 offered 2 options for determining whether soil samples from under dangerous waste management units met background level soil characteristics. These options were, (1) seeing if closure soil samples were less than or equal to the maximum background sample concentration, or (2) seeing if the closure soil sample falls within the background sample concentration mean plus 2 standard deviations.

A modified version of Ecology's second analytical option will be used to evaluate closure soil samples taken from biased (discrete) locations and random samples not composited for analysis (e.g., those analyzed for the presence of volatiles). This approach will decrease the false positives error rate associated with comparing a large number of closure samples to the background distribution rates (a multiple comparisons test). The statistical closure criterion will be based on a tolerance limit defined as that level at which the confidence level is 90 percent that no more than 5 percent of the background values exceed it. Statistical reference tables (Gilbert, 1987, Table A3) define that tolerance limit as the mean plus 2.754 deviations, based on a sample size of 8.

If it is determined that the power of the tolerance limit approach described above is not adequate for detecting residual contamination at a level of potential concern, an alternative test based on a minimum 0.01 individual comparison false positives error rate will be used. This test sets the closure criterion at the background mean plus 2.33 standard deviations, and results in an overall false positives error rate (per constituent tested) of 46 percent. In this case, there would be a 46 percent probability per constituent of

failing the closure criteria test though there is no actual residual contamination. The tolerance limit, closure criterion, and false positives error rate will change slightly if the number of background samples or closure soil samples is changed in the future.

For composited random samples, the background level of each constituent will be divided by the number of composite samples (e.g., 3) to determine the analytical result which would trigger re-examination of retained samples included in each composite. For example, if the background soil contains 6 ppm lead, and analysis of a composite soil sample indicates lead is present at 2 ppm or higher, the retained samples for that composite will be analyzed individually to determine whether any sample location(s) contain lead above 6 ppm. Per SW-846, holding times for the retained portion of composited random samples will be long enough to allow for analysis of the retained individual random samples if analysis of first-round composited random samples indicates contamination is still present.

Clean closure is achieved if comparison of closure soil sampling data to background sampling data shows that no constituents are present above background levels. If analysis of closure soil samples identifies sampling locations with concentrations of constituents above background levels, further evaluation, remediation, or soil sampling will be conducted in accordance with methods described below.

Further Evaluation, Remediation, or Soil Sampling

The actions described below will be taken if the comparison of background soil sample analyses to closure soil sample analyses, using the methods previously described, results in one or more exceedences of clean closure criteria.

First, an analysis of the number, pattern (spatial and by constituents) and magnitude of exceedences will be performed. The likelihood of the observed exceedences occurring without residual contamination being present (the null hypothesis) will be included in this evaluation. This is synonymous with an analysis of the likelihood of false positives, or Type I statistical error. Based on the results of this evaluation, one of the steps outlined below will be taken.

a) Additional background sampling will be performed and further statistical evaluations will be made comparing background to closure soil sample data.

   Additional background sampling may involve more sampling and analysis of the preload fill materials, or sampling and analysis of other matrices that are demonstrated to

be applicable to materials actually encountered during soil sampling for closure.

Additional background sampling locations will be identified by Chemical Processors, Inc. or it's consultants. Proposed additional background sampling locations will be submitted to Ecology for site selection approval. Ecology will have 2 weeks within which to notify Chemical Processors, Inc. concerning approval/disapproval of additional background sampling locations. Failure to respond within the 2 week period will constitute approval by Ecology.

b) Soils beneath the containment pads in areas shown to exceed the closure criteria will be removed, additional samples will be collected and analyzed for the constituents of concern, and the process repeated until clean closure is achieved.

In the event that soils exceeding the closure criteria are removed, additional sampling and analysis will be performed for the sampling areas that had one or more samples fail the closure comparison. Other areas not failing the comparison will not be resampled. Analysis of additional soil samples taken after soil removal will include only those constituents that failed closure in the initial sample set.

c) Closure soil sample data will be compared to risk-based soil cleanup standards, such as those being developed under the Model Toxics Control Act for inclusion in WAC 173-340. Other state and federal risk-based cleanup standards may also be used for comparison.

This is the approach preferred by Chemical Processors, Inc. when further steps to demonstrate acceptable closure are required. For this approach, an acceptable risk-based closure is achieved when analytical data for closure soil samples shows that soils under dangerous waste management units on site are at or below defined risk-based cleanup standards. For locations or constituents where acceptable risk-based closure is not achieved by this method, one of the alternative methods described elsewhere in this section will be used.

d) A risk assessment will be conducted in accordance with Ecology guidance (August 1989 closure guidelines) and other applicable state and federal guidelines. This process will evaluate whether leaving any residual contamination below levels designating the soils as dangerous wastes on site is adequately protective of human health and the environment, and does not pose an unacceptable risk.

A risk assessment used to demonstrate acceptable closure will address all environmental pathways and receptors, and will include hazard identification, exposure assessment, dose-response assessment, and risk characterization. Available guidance from state and federal environmental agencies will be consulted.

The risk assessment approach will be selected only when initial data strongly indicates that unacceptable risk does not exist. Ecology will be consulted prior to selection of risk assessment as a method to demonstrate acceptable closure of the facility. Selection of the risk assessment alternative will not be used to impede, prevent, or otherwise delay more appropriate actions necessary to successfully complete closure of the facility.

Section J

SECTION J

OTHER FEDERAL AND STATE LAWS

SECTION J. OTHER FEDERAL AND STATE LAWS

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SECTION J. OTHER FEDERAL AND STATE LAWS

40 CFR 270.14(b)(20)
WAC 173-303-395(2) and (3)

J1.0 FEDERAL REQUIREMENTS

40 CFR 270.3

Environmental Protection Agency (EPA) regulations require that EPA follow the procedures under certain federal laws before granting or denying a Resource Conservation and Recovery Act (RCRA) permit. The discussion which follows provides a description of how these laws currently apply to existing and future operations at the Chemical Processors, Inc. Pier 91 Facility.

J1.1 Wild and Scenic Rivers Act

40 CFR 270.3(a)

The Chemical Processors, Inc. Pier 91 Facility does not affect any rivers designated under the Wild and Scenic Rivers Act.

J1.2 National Historic Preservation Act of 1966

40 CFR 270.3(b)

The Pier 91 Facility is not listed or eligible for listing on the national or local Registers of Historic Places.

J1.3 Endangered Species Act

40 CFR 270.3(c)
RCW 77.12.020

No threatened or endangered species are known to exist on the plant site or in areas adjacent to the site. Facility operations are not expected to affect other critical habitat areas where endangered species might be present.

J1.4 Coastal Zone Management Act

40 CFR 270.3(d)

The State of Washington Shoreline Management Act (SMA) of 1971, under the jurisdiction of the Washington Department of Ecology (Ecology), is the approved implementation vehicle for the Coastal Zone Management Act. The SMA is implemented at the local level by individual shoreline master programs, which are prepared by local agencies and approved by Ecology.

The Pier 91 Facility is not located within a designated shoreline area included in the City of Seattle Shoreline Master Program. Smith Cove and Smith Cove Waterway (east slip, center slip, and west slip) are located approximately 800 feet southwest and 600 feet south of the site, respectively (see Figure B1-1, Pier 91 Facility Location Map). These surface waters are used for industrial and maritime activities in the Smith Cove area, and provide access to Elliott Bay and Puget Sound.

J1.5 Fish and Wildlife Coordination Act

40 CFR 270.3(e)

Chemical Processors, Inc. does not propose to impound, divert, control, or modify any body of water in the vicinity of the Pier 91 site as part of existing or planned facility operations. Consultation with state agencies having authority over wildlife resources potentially affected by such actions is not anticipated to be necessary.

J1.6 RCRA Corrective Action Program

RCRA Hazardous and Solid Waste Amendments (HSWA) 1984
Sections 3004(u), 3004(v), and 3013
40 CFR 264.101

The Corrective Action Program outlined in the regulations listed above requires monitoring, analysis and testing to determine whether the presence or release of any hazardous waste treated, stored or disposed at a facility presents a substantial hazard to human health or the environment. These regulations also require corrective action for all releases of hazardous waste or constituents from such facilities, where necessary to protect human health and the environment.

Chemical Processors, Inc. has identified solid waste management units (SWMUs) at the Pier 91 Facility, and has collected existing information on any contaminant releases from these units. This information was provided in the Pier 91 Facility Solid Waste Management Unit Report submitted to EPA and Ecology on July 5, 1988. The methodology used and type of information reviewed are discussed in the report.

EPA has issued an Order under RCRA Section 3013 to develop and implement a proposal for monitoring, analysis, and testing at the Pier 91 Facility. Actions required by this Order will lead to sampling and analysis to determine if any hazardous wastes or hazardous waste constituents are present in the soil or ground water. Chemical Processors, Inc. has submitted a proposed work plan for monitoring, analysis and testing at the Pier 91 Facility to EPA. If the corrective action is warranted, Chemical Processors, Inc. will also prepare a corrective measures study evaluating possible corrective actions at the facility and will continue to work with EPA to evaluate any potential releases to the environment at the facility.

J2.0 STATE REQUIREMENTS

WAC 173-303-395(2) and (3)

Ecology regulations require that a facility that stores or handles dangerous waste comply with all applicable federal, state, and local environmental protection laws and regulations. In addition to the federal laws cited above, Ecology requires compliance with other state and local laws and regulations before approving a RCRA permit. The discussion which follows provides a description of how these laws currently apply to operations at the Chemical Processors, Inc. Pier 91 Facility.

J2.1 State Water Pollution Control Standards

The Revised Code of Washington (RCW) 90.48 designates Ecology as the State Water Pollution Control Agency for the purposes of the Federal Clean Water Act, to establish and administrate state programs for water pollution control. State regulations

require a waste disposal permit for industries discharging waste materials into public sewerage systems which discharge into public waters of the state.

Rainfall run-off from process and non-process areas at the Pier 91 Facility is channelled to collection sumps on site. The collected rainwater is screened and, if appropriate, is discharged to the Municipality of Metropolitan Seattle (Metro) sewer system or is treated prior to discharge to the system. Sewer discharges are regulated under conditions specified in Industrial Wastewater Discharge Permit Number 7099-R09/84-2.

Metro regulates all industries discharging industrial wastewater into the city's sanitary sewer system, and oversees compliance with the Water Pollution Control standards outlined in RCW 90.48. The industrial wastewater discharge permit issued to Chemical Processors, Inc. by Metro (see Section J2.5) incorporates provisions for compliance with federal, state, and local laws and regulations addressing water pollution control standards.

J2.2 Minimum Functional Standards for Solid Waste Handling

Regulations contained in WAC 173-304 establish minimum functional performance standards for solid waste handling, and operation of solid waste handling facilities. The Pier 91 Facility is a dangerous waste management facility. Dangerous wastes are exempt from the requirements of the Minimum Functional Performance Standards for Solid Waste Handling, as per WAC 173-303-015(3).

Facility is provided in Appendix J-1 of this permit application.

J2.4 Puget Sound Air Pollution Control Agency

The requirements and purposes of the Washington Clean Air Act and the Federal Clean Air Act are implemented in Regulation I of the Puget Sound Air Pollution Control Agency (PSAPCA). Current operations at Chemical Processors, Inc. are in compliance with Regulation I. Proposed operations at the Pier 91 Facility will be evaluated for compliance with Regulation I.

J2.5 Industrial Wastewater Discharge Permit Revised, November 1991

Metro requires that industrial wastewater discharges to the Metro Sewer System comply with Metro Resolutions No. 3374 and 4530, and applicable provisions of federal or state law or regulation.

Discharges of treated wastewater from the Chemical Processors, Inc. Pier 91 Facility are regulated under Industrial Wastewater Discharge Permit No. 7099-R09/84-2, originally issued by Metro on August 29, 1979 and renewed most recently on March 19, 1991. The permit is effective through March 19, 1996, and is subject to modification or revision if the condition of the wastewater discharge or receiving waters changes.

The permit specifies wastewater discharge limitations, monitoring requirements, reporting requirements, other special conditions, and general conditions to control the quality of

water discharged from the facility. In addition to limitations on wastewater characteristics and quantity, permit conditions require adequate containment systems to prevent releases to surface or groundwaters, treatment of run-on into process areas, and other procedures designed to ensure that discharge requirements are met.

J2.6 Model Toxics Control Act

Revision, May 1991
Revised, July 1991

Relevant portions of the Model Toxics Control Act as codified under WAC 173-340 will be applied to clean-up and closure activities at Chempro's Pier 91 Facility.

J3.0 LIST OF PERMITS

Revision, January 1990

Table J3-1 lists selected permits issued to the Chemical Processors, Inc. Pier 91 Facility by state and local regulatory agencies. Additional permits and registrations are and will be obtained as needed for activities such as construction on site or installation of additional treatment tanks and equipment.

BURLINGTON ENVIRONMENTAL

CERTIFIED MAIL

May 19, 1991

Ms. Carrie Sikorski
U.S. Environmental Protection Agency
RCRA Permits
Region X
1200 Sixth Avenue
Seattle, Washington 98101

Re: Revision of Appendix J-1, SEPA Checklist, for Burlington Environmental Inc. Pier 91 Facility Part B Permit Application

Dear Ms. Sikorski:

Please find enclosed the revised version of Appendix J-1, SEPA Checklist, for the Pier 91 Facility Part B Permit Application. Per a request from Doug Brown, permit writer at Ecology, revisions have been provided so that the checklist is available in its complete form prior to public review of the "state-only" draft Part B permit and attachments.

The Pier 91 Part B SEPA Checklist has undergone minor revisions to add back text that was missing after March 1992 revisions, and to ensure that checklist information on lighting and traffic volumes is consistent with current facility conditions and other sections of the permit application. These revisions do not significantly change the nature of information already reviewed by EPA and Ecology.

Two sets of revisions are being supplied to EPA for copies 3 and 4 of the permit application. Two copies of the permit application revisions have also been sent to Ecology. Please place these revisions in your copies of the permit application as indicated on the instruction sheets provided.

I can be reached at 223-0500 if you have any questions.

Sincerely,

Catherine L Buller

Catherine L. Buller
Environmental Programs Manager

Enclosures
cc: Doug Brown, Ecology
Cindy Gilder, Ecology (w/o enclosures)

Burlington Environmental Inc.
2203 Airport Way South • Suite 400 • Seattle, WA 98134
(206) 223-0500 • FAX: (206) 223-7791

APPENDIX J-1

STATE ENVIRONMENTAL POLICY ACT
ENVIRONMENTAL CHECKLIST

Revised, January 1990, December 1990, November 1991,
March 1992, May 1992

APPENDIX J-1

STATE ENVIRONMENTAL POLICY ACT
ENVIRONMENTAL CHECKLIST

A. BACKGROUND

1. Name of proposed project, if applicable:

   Dangerous Waste Treatment and Storage Facility Part B Permit Application for the Burlington Environmental Inc. Pier 91 Facility.

2. Name of applicant:

   Burlington Environmental Inc.

3. Address and phone number of applicant and contact persons:

   2203 Airport Way S., Suite 400
   Seattle, WA 98134
   (206) 223-0500
   Contacts: Ms. Catherine Buller
   Regulatory Affairs

   Mr. Dave Larimore
   Engineering/Construction

4. Date checklist prepared:

   November 1988. Revised, January 1990, December 1990, November 1991, March 1992, May 1992

5. Agency requesting checklist:

   State of Washington, Department of Ecology (Ecology).

6. Proposed timing or schedule (including phasing, if applicable:

   The checklist describes existing conditions at the facility, and future plans for operations as described in the accompanying Resource Conservation and Recovery Act (RCRA) Part B Permit Application.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal?

   Yes. Plans for the facility include construction of a dangerous waste loading/unloading area and temporary container storage area on an 0.2-acre area adjacent to

the existing 0.5 acre dangerous waste facility. This will allow dangerous waste (RCRA) operations to be separated from the non-dangerous waste activities on the remaining 3.3 acre portion of the facility.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

   A RCRA Part B Permit Application for the Pier 91 Facility has been prepared by Chemical Processors, Inc. and is being submitted concurrently to Ecology in October 1988. A hydrogeological investigation to characterize soil and groundwater conditions at the facility has been conducted by Sweet-Edwards/EMCON, Inc. (May 1988), and a storm water run-on study for the site has been prepared by Howard, Needles, Tammen, & Bergendoff (HNTB; 1988).

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

   No applications pending at this time.

10. List any government approvals or permits that will be needed for your proposal, if known.

    A RCRA Part B Permit will be required for continued operation of the facility. Other approvals or permits required for facility operations may include air pollution control, wastewater discharge, building permits, and fire department permits. Government approvals or permits for any future improvements at the site will be obtained as necessary for continued operation.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page (Lead agencies may modify this form to include additional specific information on project description.)

    This proposal is for submittal of a RCRA Part B Permit Application for Chemical Processors, Inc. to continue to operate a dangerous waste storage and treatment facility at 2001 W. Garfield Street, Pier 91, Port of Seattle, Washington. The current facility occupies portions of a 4 acre site. The dangerous waste

operations will be limited to an 0.7-acre portion of the Pier 91 Facility.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

Burlington Environmental Inc.
Pier 91 Facility
2001 W. Garfield Street, Pier 91, Port of Seattle
Seattle, WA 98421

Section, Township and Range:
SE 1/4 of SE 1/4 of Section 23
Township 25 N, Range 3 E

A site plan for the Pier 91 Dangerous Waste Facility is found on Figure B1-2, Pier 91 Facility Site Plan, in the RCRA Part B Permit Application. Figure B1-1, Pier 91 Facility Location Map, provides a vicinity map for the facility. A topographic map is included as Figure B2-1 of the RCRA Part B Permit Application.

TO BE COMPLETED BY APPLICANT

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (circle one): (Flat,) rolling, hilly, steep slopes, mountainous, other _____.

b. What is the steepest slope on the site (approximate percent slope)?

0 to 5 percent slope: man-made, not due to natural contours (e.g., secondary containment areas are sloped approximately 1 percent to on-site sumps throughout the facility).

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

The top soil layer consists of sand (fill) material up to 20 feet thick, underlain by a gravelly sand (fill) unit ranging from 2 to 15 feet thick. These layers are followed by silty sand, silt, sand, and interbedded sand and silt in layers up to 48 feet below the site.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

No.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

None.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Erosion is not anticipated to occur as a result of construction or operations at the site. The relatively flat topography of the site and existence of paved surfaces on site contribute to erosion control methods. Standard construction methods will be followed to further guard against erosion during any construction activities at the site.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

100 percent of the facility is and will remain covered with impervious surfaces.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Erosion and other impacts to the earth will be prevented through use of sound construction practices. During facility operations, these types of impacts are prevented through use of concrete and secondary containment systems.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Construction activities may result in short-term, temporary emissions from gas- and diesel-powered construction equipment. Site work and truck traffic may also result in short-term, temporary increases in fugitive dust emissions during construction.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

None. Other emissions or odors within the Pier 91 area will have no effect on the Chemical Processors, Inc. Facility.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Organic vapor emissions and odors which may occur from tanks at the facility are controlled by a condenser and carbon adsorption equipment. Other emission controls at the facility will be installed where necessary, in compliance with Puget Sound Air Pollution Control Agency (PSAPCA) Regulation I.

3. Water

a. Surface

1. Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

No surface water bodies exist on the site.

Smith Cove and Smith Cove Waterway (east slip, center slip, and west slip) are located approximately 800 feet southwest and 600 feet south of the site, respectively (see Figure B1-1, Pier 91 Facility Location Map). These surface waters are used for industrial and maritime activities in the Smith Cove area, and provide access to Elliott Bay and Puget Sound.

2. Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

No.

3. Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

None.

4. Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No.

5. Does the proposal lie within a 100-year floodplain? If so note location on the site plan.

No. See Figure B3-1, Flood Plain Designation Map, in Section B (General Facility Description) of the RCRA Part B Permit Application.

6. Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No.

b. Ground:

1. Will groundwater be withdrawn, or will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No.

2. Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals...; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

None. Sanitary sewer lines are used to dispose of domestic and treated industrial wastewater to the Municipality of Metropolitan Seattle (Metro) sewer system.

c. Water Run-off (including stormwater):

1. Describe the source of run-off (including stormwater) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Facility drainage patterns for run-off from non-process areas slope away from the secondary containment systems for dangerous waste management units and other process areas on site. Stormwater drainage patterns and the on-site storm sewer system are shown on Figures B2-4 and B2-6 of the RCRA Part B Permit Application. All stormwater on site is directed to drainage collection areas on site and contained for discharge to the Metro sewer system or for treatment on site prior to discharge (see Section D1.2.2 of the RCRA Part B Permit Application).

Rainfall run-off which accumulates in the dangerous waste secondary containment systems on site is collected in sumps and is pumped into on-site storage tanks. The water is sampled and analyzed for compliance with the discharge parameters. It may be processed along with wastewater treated or stored in tanks within the same

secondary containment area. The run-off and treated wastewater is then sampled and analyzed prior to pumping to a tank for approved sewer discharge (see Section C, Waste Characteristics). Run-off and treated wastewater meeting discharge parameters is released in approved discharges to the Metro sewer system, under Industrial Wastewater Discharge Permit No. 7099.

2. Could waste materials enter ground or surface waters? If so, generally describe.

Dangerous waste management units at the Pier 91 Facility include adequate secondary containment to protect against the release of spilled materials to the environment. Should a spill occur outside of the secondary containment, emergency response measures are taken to ensure rapid containment and cleanup of spilled materials to protect ground and surface waters. These emergency response procedures are identified in Section B7.0, Spills and Discharges Into the Environment, and in Section G, Contingency Plan in the RCRA Part B Permit Application.

d. Proposed measures to reduce or control surface, ground, and run-off water impacts, if any:

Degradation of ground and surface water quality at the Pier 91 Facility is prevented through operation of dangerous waste management units in accordance with applicable regulations to prevent releases to the environment or endangerment of public health (see Section B5.8). Construction and operation of the units, including features to prevent surface, ground, and run-off water impacts, are described in Section D, Process Information, in the RCRA Part B Permit Application.

The secondary containment systems will meet state and federal regulations for prevention of run-off to non-process areas, and other regulations for construction and operation of secondary containment systems (40 CFR 264.193 and WAC 173-303-640(2)(b)).

All loading, unloading, storage and treatment of dangerous waste is conducted within secondary containment systems designed with berms, blind sumps, and tank overfill monitoring systems. The tank system containment walls and berms are of sufficient height to prevent overflow from the failure of any tank. All tanks are closed-top and are not subject to overtopping by wave or wind action, or precipitation. The temporary container storage area and tank system will not be subject to run-on from a 100-year/24-hour storm because each will be adequately bermed and elevated. The tank overfill monitoring equipment is regularly inspected to ensure proper working order. The design and operation of dangerous waste management units on site is further described in Section D, Process Information. Inspection procedures to ensure proper maintenance and operation of equipment at the facility are described in Section F, Procedures to Prevent Hazards, in the RCRA Part B Permit Application.

Should a spill occur outside of the secondary containment, emergency response measures are taken to ensure rapid containment and cleanup of spilled materials to protect ground and surface waters. These emergency response procedures are identified in Section B7.0, Spills and Discharges Into the Environment, and in Section G, Contingency Plan, in the RCRA Part B Permit Application.

4. Plants

a. Check or circle types of vegetation found on the site:

None.

___ deciduous tree: alder, maple, aspen, other
___ evergreen tree: fir, cedar, pine, other
___ shrubs
___ grass
___ pasture
___ crop or grain
___ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
___ water plants: water lily, eelgrass, milfoil, other
___ other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

None. The entire facility is paved, including areas where buildings and waste management units are not located.

c. List threatened or endangered species known to be on or near the site.

None.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

No significant impacts are anticipated, therefore measures to preserve or enhance vegetation on the site have not been proposed.

5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, songbirds, other: pigeons
mammals: deer, bear, elk, beaver, other: cats, rodents
fish: bass, salmon, trout, herring, shellfish, other

b. List any threatened or endangered species known to be on or near the site.

None.

c. Is the site part of a migration route? If so, explain.

The site is located near Elliott Bay, frequented by migratory birds during spring and fall flights along the Pacific Flyway. Hawks, shrikes, and sparrows are typical species sighted at upland locations during migration seasons. It is considered doubtful that birds or mammals use this area exclusively over other feeding and habitat areas available to them.

d. Proposed measures to preserve or enhance wildlife, if any:

The Pier 91 Facility is fenced to keep animals from wandering onto the property. No significant impacts are anticipated, therefore other mitigation measures have not been proposed.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

The primary use of energy on site is boiler-generated steam used to heat treatment tanks, and electric power used for lighting, heat, pumps and other equipment.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

No significant impacts are anticipated, therefore measures to reduce or control energy impacts have not been proposed.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, please describe.

Accidental releases to the environment or accidental contact with wastes could result in exposure to dangerous wastes.

1. Describe special emergency services that might be required.

The Seattle Fire Department and Police Department might be required to respond to an accidental release not able to be controlled by on-site personnel and equipment. Swedish Hospital Medical Center or the Seattle Occupational Medical Center might be required to treat individuals if injuries occur at the facility. See Section G, Contingency Plan, for a description of coordinating agreements between Chemical Processors, Inc. and local emergency service providers for the Pier 91 Facility.

2. Proposed measures to reduce or control environmental health hazards, if any:

Existing operating procedures and features such as containment berms, sumps, overfill monitoring systems, air emission control equipment, warning signs, traffic control measures, and laboratory analysis of incoming and outgoing wastes are designed to prevent health hazards

for both employees working at the facility and for the public near the facility. Personnel training, protective equipment, medical surveillance, inspections, contingency plans, and spill prevention plans are also actively used to prevent environmental health hazards.

b. Noise

1. What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Existing off-site sources include automobile, truck, train and ship traffic, and noise from nearby maritime and industrial facilities. These noise sources do not affect construction or operation activities at the Chemical Processors, Inc. facility.

2. What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Equipment used to construct or install planned units may result in short-term, temporary increases in noise levels, primarily during regular working hours (7 a.m. to 5 p.m.). Operation of the facility results in routine noise associated with equipment operation (primarily during regular working hours) and truck traffic (primarily during peak traffic periods on weekdays, approximately 10 a.m. to 1 p.m. and 4 p.m. to 8 p.m.). These impacts will be confined largely to on-site areas, and are not expected to be excessive relative to existing background noise levels.

3. Proposed measures to reduce or control noise impacts, if any:

Construction- and operation-related noise will occur primarily between the hours of 7 a.m. to 5 p.m. Noise due to truck traffic will occur primarily during peak traffic periods on weekdays, approximately 10 a.m. to 1 p.m. and 4 p.m. to 8 p.m. This and other noise sources are not anticipated to be significant, therefore other mitigation measures have not been proposed.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties?

The site is currently occupied by a waste oil reclamation facility, a portion of which is occupied by a dangerous waste treatment and storage facility. Adjacent properties are zoned General Industrial, and are used for mixed maritime and industrial purposes, including fish processing; cold storage buildings; automobile off-loading, storage, and preparation; and railroad yards.

b. Has the site been used for agriculture? If so, describe.

No.

c. Describe any structures on the site.

Existing structures on site include a storage warehouse with laboratory and offices, tank systems, electrical shack, two pump shacks, and an operator's office/lunch room.

d. Will any structures be demolished? If so, what?

Tanks and process units which are determined to be no longer usable will be removed and possibly replaced during the life of the facility. Closure of the facility will involve the removal or decontamination of tanks, tank system components, and other waste management units.

e. What is the current zoning classification of the site?

IG1 U/45: General Industrial, 45' height limit.

f. What is the current comprehensive plan designation of the site?

None.

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

No.

i. Approximately how many people would reside or work in the completed project?

Approximately 10 to 15 people currently work in two shifts at the entire facility, including non-dangerous waste operations. A third shift may be established at the facility, requiring the addition of approximately five people.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Not applicable.

1. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The facility is consistent with existing and projected land uses at this location, and is considered an allowable use under zoning regulations for the area.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any:

Not applicable.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Maximum tank height in the dangerous waste tank system is approximately 30 feet. The principal tank material is carbon steel, painted with a flat light-colored paint to reduce glare. A small number of polyethylene tanks (manufactured in a light green color) will also be used on site.

The tallest building at the Pier 91 Facility is the warehouse and office building (Building 19), approximately 27 feet high. This building is constructed of corrugated steel.

b. What views in the immediate vicinity would be altered or obstructed?

No significant change in the character of existing views is anticipated as a result of this action. Views in the immediate vicinity will be altered by planned installation of dangerous waste tanks and related units on site.

c. Proposed measures to reduce or control aesthetic impacts, if any:

The scale and appearance of the facilities are in keeping with the nature of surrounding conditions. No significant impacts are anticipated, therefore mitigation measures have not been proposed.

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The entire facility is currently lighted by sodium vapor lamps and 150 watt lights throughout the night. These lights are present at several locations around the facility, grouped around the tank systems, catwalks, on-site buildings, and periphery of the property. Lights from trucks and other vehicles travelling to and from the site also contribute to light and glare in the area. These conditions are expected to remain typical of light and glare sources at the site in the future.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

c. What existing off-site sources of light or glare may affect your proposal?

None. Traffic on adjacent roadways and lights from nearby maritime and industrial facilities contribute to existing light and glare, but do not affect the Chemical Processors, Inc. facility.

d. Proposed measures to reduce or control light and glare impacts, if any:

No significant impacts are anticipated, therefore mitigation measures have not been proposed.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

No recreation opportunities exist within the fenced and guarded Terminal 91 area.

A City of Seattle bicycle path is located east of the Pier 91 Facility, across from and parallel to the eastern access road. Another bicycle path is located approximately 1/4 mile west of the facility, at the base of Magnolia Hill. Smith Cove Park, operated by the Port of Seattle, is located approximately 1/4 mile southwest of the facility.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

No significant impacts are anticipated, therefore mitigation measures have not been proposed.

13. Historic and Cultural Preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

No.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

Not applicable.

c. Proposed measures to reduce or control impacts, if any:

No significant impacts are anticipated, therefore mitigation measures have not been proposed.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

W. Garfield Street provides direct access to the south side of the facility, via controlled access entrances to Piers 90 and 91. Adjacent streets and highways include 15th Avenue W. and Elliott Avenue W., W. Dravus Street, and Thorndyke Avenue W.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest stop?

A Metro Transit bus stop is located less than 1/4 mile from the facility, on the W. Garfield Street viaduct immediately south of the facility. Public transit access for handicapped persons is located within approximately 1/2 mile, at 14th Avenue W. and W. Garfield Street.

c. How many parking spaces would the completed project have? How many would the project eliminate?

The facility currently has approximately 15 to 20 parking spaces. Future construction is not anticipated to eliminate any parking spaces.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The facility presently does not require the use of water or air transportation routes, and is not located in an area used for air transportation.

Smith Cove and Smith Cove Waterway (east slip, center slip, and west slip) are located approximately 800 feet southwest and 600 feet south of the site respectively. These surface waters are used for industrial and maritime activities in the Smith Cove area, and provide access to Elliott Bay and Puget Sound.

The Burlington Northern Railroad right-of-way is located in the vicinity of the project site, to the east and northeast. The railway serves tenants throughout the waterfront area, and beyond. A railroad spur is located along the west side of the warehouse (Building 19) at the Pier 91 Facility, and can be used to receive bulk shipments.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

Current traffic volumes at the existing facility average 53 shipments per week. Traffic volumes at the dangerous waste area will average approximately 18 shipments per week, a large majority of which will be tankers redirected from the current loading/unloading areas elsewhere on site.

Peak traffic volumes typically occur on weekdays from 10:00 a.m. to 1:00 p.m. and from 4:00 p.m. to 8:00 p.m., when incoming/outgoing shipments and on-site traffic movements are greatest.

g. Proposed measures to reduce or control transportation impacts, if any:

Traffic impacts are reduced through adherence to an on-site traffic circulation plan which designates entrance, exit, and loading/unloading areas for trucks. Parking areas are also designated. Truck drivers are also advised to follow designated routes which provide the safest and most controlled access between the facility and major arterials or highways serving the area. These measures will be maintained to reduce potential traffic impacts caused by any increased traffic volumes and facility expansion.

15. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

See Response No. 7.a.1. No direct increase in the need for public services will result from this project. In the event of an accidental release to the environment, police, fire, and health care services may be required

during response and cleanup. Agreements for provision of these services have been made with local public service providers.

b. Proposed measures to reduce to control direct impacts on public services, if any.

No significant impacts are anticipated, therefore mitigation measures have not been proposed.

16. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Utility services are provided by the following companies:

- City of Seattle (electricity, water)
- Bayside Disposal (refuse service)
- Municipality of Metropolitan Seattle (Metro; sanitary sewer)
- U.S. West Communications (telephone)

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: Michael P Kerk

Date Submitted: May 19, 1992

SECTION K

CERTIFICATION

SECTION K. CERTIFICATION
Revised November 1991

40 CFR 270.11
WAC 173-303-810(13)(b)(i), (ii)

OPERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Chemical Processors, Inc.

W. Dan P Keller
Signature

Michael P. Keller
Name (Type or print)

Vice-President of Operations
Title

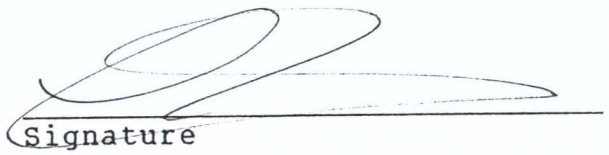
11/22/91
Date

WAC 173-303-810(13)(b)(ii)

OWNER CERTIFICATION

I certify under penalty of law that I am the Chief Executive Officer of the Port of Seattle which owns the real property described in, and that the Port is aware of the contents of, this permit application and that the Port has received a copy of this application. I understand that, as owner of the real property, the Port of Seattle is responsible for complying with any requirements of Chapter 173-303 WAC with which only it is able to comply, and that there are significant penalties for failure to comply with such requirements.

PORT OF SEATTLE



Signature

ZEGER J. J. VAN ASCH VAN WIJCK
Name (Type or Print)

CHIEF EXECUTIVE OFFICER
Title

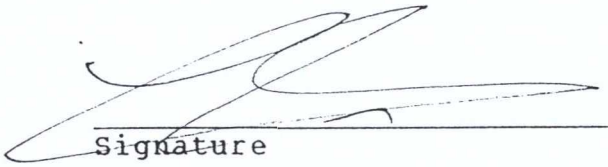
12/19/91
Date

3024G

40 CFR 270.11 (d)

I certify under penalty of law that this document and all attachments have been reviewed by the Port of Seattle and that to the best of my knowledge they were prepared in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

PORT OF SEATTLE



Signature

ZEGER J. J. VAN ASCH VAN WIJCK

Name (Type or Print)

CHIEF EXECUTIVE OFFICER

Title

12/19/91

Date

3033G